THE

MAGNET:

DEVOTED TO THE INVESTIGATION OF

HUMAN PHYSIOLOGY,

EMBRACING

VITALITY, PATHETISM, PSYCHOLOGY, PHRENOPATHY, PHRENOLOGY,

NEUROLOGY, PHYSIOGNOMY AND MAGNETISM.

BY LA ROY SUNDERLAND.

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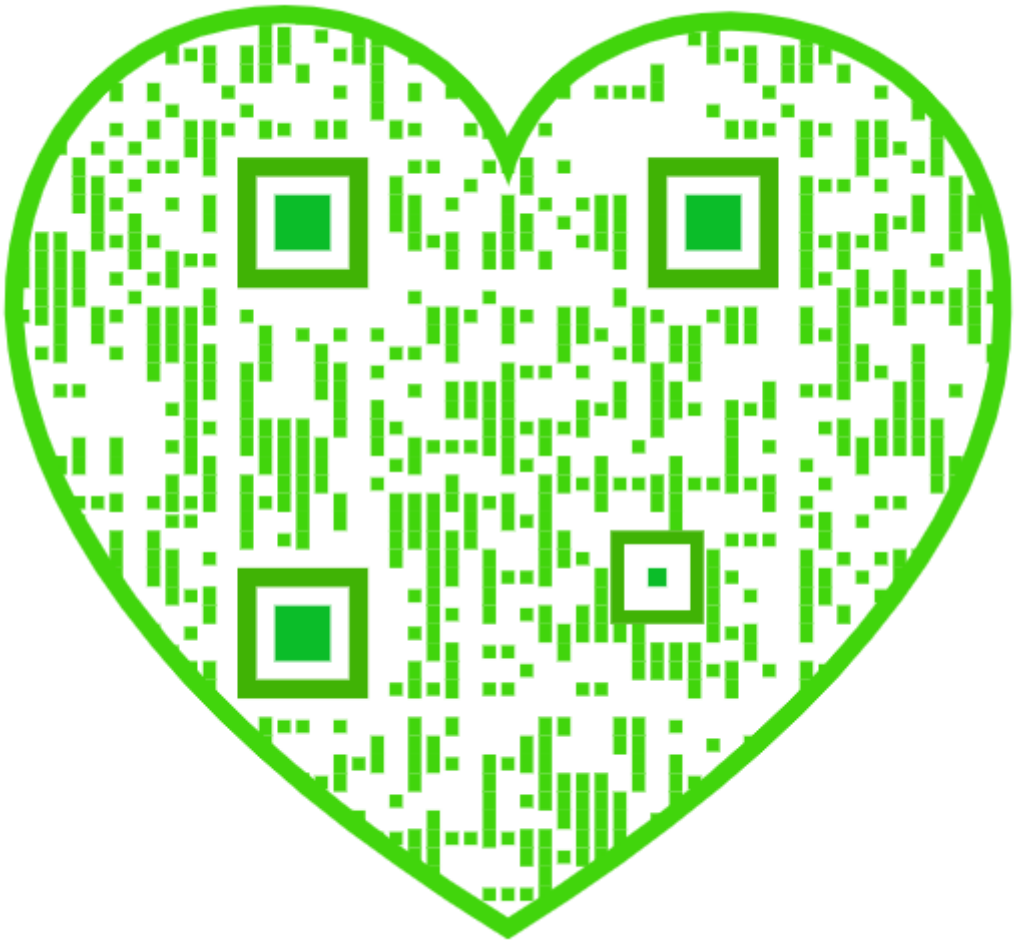

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THE

MAGNET.

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PRELIMINARY.

It has been well remarked, that courage to *think*, is infinitely more rare than courage to act; and, yet, the danger in the former case is only imaginary, in the other real.

On no subject, perhaps, has the human mind manifested more want of courage, than in the pursuit of those inquiries which have had for their object the development of its own powers, and the laws by which it is governed.

It is intellect which distinguishes man above all the other works of the great Creator. To understand, therefore, the true philosophy of mind, is one of the highest and most noble objects that can possibly engage the attention of any human being.

It is not necessary for the attainment of our present object, to attempt an account of the different theories advanced, heretofore, by the learned, in relation to the philosophy of mental exercises. It would be much more easy, we think, to tell what they have not explained, in their theories, than it would be to show that any one of them has given a satisfactory account of that connection which exists between mind and matter, and the different ways in which one is affected by the other.

It is a humiliating fact, and one which shows the limits, and difficulties in the way of human knowledge, that the mind should be so slow in arriving at correct perceptions of its own nature. And the same remark, indeed, might be made of the human body. For, how many thousands of years had man existed before he discovered the circulation of the blood? And, when that discovery was first announced, was it received by the learned, the philosophers, and the conservators of knowledge? Did the multitude fall in with that momentous discovery, as a matter which promised any good to the human family? Not at all. It was ridiculed and opposed as a most dangerous error, and years passed away before Harvey's theory was generally received.

And thus of discoveries in Astronomy. Copernicus, it is said, was compelled, by public opinion, to keep his discovery of the true solar system to himself for more than thirty years. And Galileo, for avowing his belief in the same system, was cited to appear before the Pope, and condemned to prison, while his writings were publicly burned in the streets of Rome! The odium heaped on the characters of these luminaries of our world, by those upon whose minds their light first began to shine, has been scarcely equaled, perhaps, by that cast upon the advocates of Phrenology, or the believers in Living Magnetism.

Indeed, it would be difficult to name any important discovery, ever made, in any branch of natural science, but which was, at first, most violently opposed; and it is worthy of notice, that each of them have been opposed on the same grounds—they have all been rejected as "false in philosophy, and contrary to the express word of God!" And the Bible has been appealed to, almost as often, to disprove Geological and Astronomical facts, as it ever was to establish any article of the Christian Faith.

Our Prospectus has already informed the reader, that the grand design of the Magnet will be, to call attention to such FACTS, connected with Physiology, Phrenology, and Living Magnetism, as may lead to the knowledge of those laws which govern the human mind. We shall call for *facts;* and shall attempt the establishment of no theory, till we are led into it by a sufficient number of FACTS, such as will bear the ordeal of the most rigid scrutiny.

The facts we have to present, under the head of Mental Phenomena, are numerous; and of their truthfulness there can be no dispute. These facts concern all who have minds to be enlightened. In presenting them, we have only to ask the reader, not to cry "murder," but to explain them. If you do not agree with us, in the inferences we draw from undisputed premises, very well. Draw your own inferences; or if you cannot agree with us, as to the manner in which certain phenomena should be accounted for, very well. If you do not like our explanation, give a better one of your own. But, it surely will not solve all the difficulties for an objector to answer, that all is empiricism, either because it is new to him, or he does not understand *how* the thing can be. Suppose I prove that the thing is, precisely, as I have stated it? If the phenomena exist, *you* must account for it as well as I.

The better way, therefore, is, for us to come to the examination of this subject in the exercise of honesty and candor. No one can justly assume, that he has *all* the light, and *all* the truth, on this or any other subject. The light of the great luminary of day "shines for all." So of moral and philosophical truth. It is confined to no creed, nor sect, nor name. It shines for all. God is its

great author and patron. And he has endowed us with minds capable of investigation, and laid before us the means for acquiring this knowledge. And if "the proper study of mankind is man," it becomes every one to understand, as far as possible, the nature of his own being; the attributes and capabilities of his own mind; and the means by which that mind is enlightened, and made to subserve the great end for which it was created.

That our enterprise is new, and attended with many difficulties, we know. Nor do we anticipate a general credence in our statements, without investigation. Our object is investigation. All we ask is, that persons prepossessed against our assumptions, will lay aside their prejudices, and come to the examination of our facts with that candor which their importance demands.

We confidently believe, that we have the means of making this periodical one of the most interesting of any ever published. Give us sufficient patronage, and you shall see in these pages accounts of some of the most interesting mental phenomena which it ever fell to the lot of any one to record. Phenomena, so striking, so demonstrably true, so wonderful, so full of meaning, in the light which they shed on various states of the human mind, that we are positively at a loss for language to express our emotions in view of them.

It is now very generally known, both in this country and in Europe, that the editor of this work has been engaged, for some time, in a course of Magnetic cerebral experiments, and the promise was long since made, that a full account of their results should be given to the world, as soon as sufficient patronage could be obtained for this periodical, to warrant its publication. Gentlemen, whose names it would afford the editor great pleasure to mention, could he feel at liberty to do so, have suggested the propriety of this work. Having witnessed our experiments, they agree with us in the opinion, that their results give a most clear, philosophical, and satisfactory solution of *Dreaming*, *Monomania*, *Insanity*, and *Madness*.

Indeed, we are confident that no change was ever wrought in the science of Astronomy, or Medicine, more real than that which *Phrenology* and *Magnetism* will yet bring about in *Mental Philosophy*. And what can be more interesting than to see the human mind itself, as it were, dissected? To be able to look into its hidden recesses, and explore the sources of *thought?* To understand how it is, that the *immaterial, conscious, self-determining* PRINCIPLE controls matter, and gives expression through the physical organs to its own desires and emotions? To be able to show how it is, that the eyes, and the features of the face, speak out and manifest, as they do, the feelings of the *soul?*

The subject of Living Magnetism, we know, is destined to abuse and misrepresentation. Why not, as much as any other truth, or fact, in which the good of MAN has been concerned? Scarcely any matter of fact, now admitted by the scientific world, but was once a subject of ridicule. And what subject has been more abused than Religion? And yet, it *lives*, and spreads, and gives sure presage of its triumph all over the world: —

"TRUTH, crushed to earth, shall rise again,
The eternal years of God are hers;
But error, wounded, writhes in pain,
And dies amid her worshipers."

It is a most interesting fact, that Phrenology, though now in its infancy, has well nigh lived down the ridicule and opposition which were formerly waged against it. And, had it not been true — had it not been founded in fact — the names, and talents, and wealth, which have been arrayed for its annihilation, would have proved successful long ago! But what a glorious triumph has Phrenology achieved over the world, in arms against it! Yes, its claims, as a science of the first importance, are not only now generally admitted, but the best minds in the civilized world are convinced of its truth. Not a class of the learned can be mentioned, not a party, in religion, medicine, or politics, but among whom you will find numbers who firmly believe in the truth of Phrenology; and many who will acknowledge themselves indebted to its *light*, as much, or more, than to any other science, for the knowledge they have of themselves, or the mental character of others. Indeed, we do not believe that any other science could boast of men higher in the scale of intelligence or learning, than are now the firm advocates of Phrenology.

And the learned Dr. Elliotson, President of the Royal Medical Society of Edinburgh, affirms that "*the production of coma* (sleep) *by Mesmerism*, independent of all mental impressions, *is a truth now admitted by a very large number of the best informed, acutest, and least credulous men in England.*" And we venture to predict, that the time is not distant, when the fact will be generally admitted in this country. Hitherto, it has been stoutly denied; and all that we have seen in the papers, magazines, and quarterlies, on this subject, has been but little else than ridicule and misrepresentation.

But, it is not to be supposed that the claims of Living Magnetism will be generally admitted, all at once. As yet, but very little is known of its laws,—and this little will obtain credence by slow degrees, like other new matters of fact. However, if there be inherent efficiency in truth, or, if we may judge of the future by the past, then we may confidently anticipate the time when justice will be rendered to this subject. If it be true, it can bear all, and more falsehoods than have ever yet been reported against it. These, *truth* is able to bear. They will, of course, retard her progress for a while, but not forever.

It is in the nature of the human mind to progress in its investigations of whatever tends to illustrate its own susceptibilities and powers. It has not the power of originating faculties for itself, but it has the power to become familiar with itself; to know its own properties, and the nature of those exercises which distinguish mind from every thing besides. Like matter, when once set in motion, it continues, in despite of time's changes; and its great Author, himself, informs us that its motions are destined to continue,

"While life, and thought, and being last,
Or immortality endures."

TERRESTRIAL MAGNETISM.

Written for the Magnet.

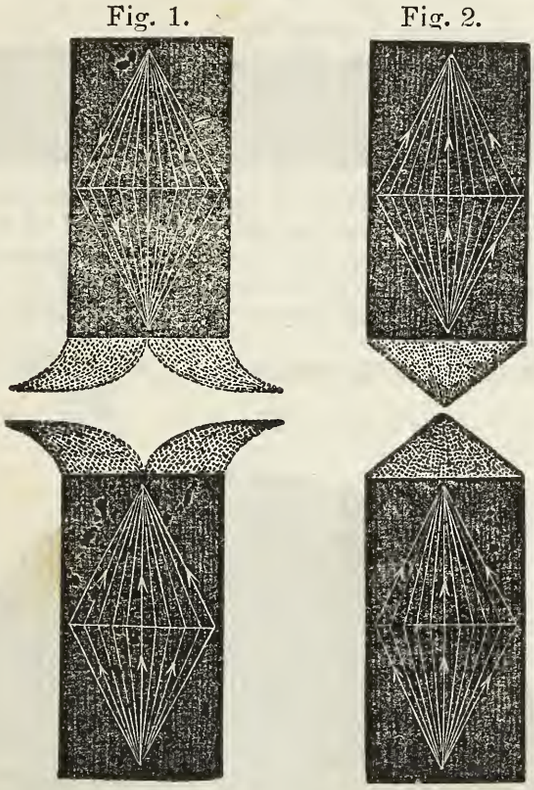
THE MAGNETIC FORCES.

BY HENRY HALL SHERWOOD, M. D.

The action of the forces on which motion depends, is illustrated, in the most simple manner, by the magnet; for one of these forces repels and expands, as seen in the case of magnetized iron filings adhering to each other, and to magnetic poles of the same kind, as seen in iron or steel bars, fig. 1.

The other is an attractive force which contracts, as seen in the case of magnetized iron filings adhering to each other, and to poles of opposite kinds, as seen in iron or steel bars, fig. 2.

Fig. 1. Fig. 2.



The pole to which the arrow head of the magnetic needle points, is called, for the sake of distinction, the negative pole; and that to which the opposite or tail end of the needle points, the positive pole. The arrow head of the needle being at the same time a positive, and the opposite end a negative pole, the negative pole of the magnetized bar attracts the positive, and repels the negative end of the needle at the same time; because opposite poles attract, and similar poles repel each other, as seen in the case of the iron filings.

In the case of the positive pole, in the magnetized bar, this order is reversed; for the positive pole of the bar attracts the negative, and repels the positive end of the needle at the same time, and consequently compels it to lie on the magnetic lines in the bars, as seen in the figures. These magnetic poles always have a magnetic axis on a direct line between them, and a magnetic equator equidistant from them, and at right angles with the magnetic axis, as is also seen in the figures.

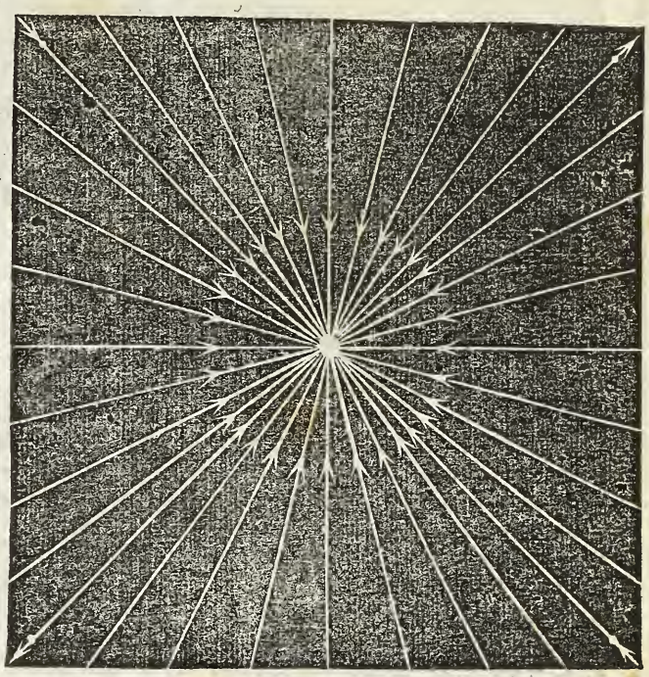
These forces are innate in every kind of matter, and are uniformly found in a simple unorganized state in unorganized bodies, and in an organized or magnetized state, in organized bodies, as is well ascertained by chemical analysis; for, the decompositions and compositions in chemistry are well known to be produced by the action of these forces.

The amount of these forces in a given quantity of matter, is so great as to make its estimation very difficult. Some idea of its amount may, however, be formed from the amount obtained in the decomposition of one drop of water, which is ascertained to be sufficient to charge a large galvanic battery. No doubt can, therefore, be entertained, that the amount of these forces, condensed in matter, is abundantly sufficient for all the purposes of motion.

When an organized body is magnetizing another body, it is organizing the forces condensed in the unorganized body. To magnetize is, therefore, to *organize* the forces in the body magnetized; for, when one body is magnetized by another, the magnetizing body loses no appreciable power by its action on the body magnetized, as is well ascertained by numerous experiments.

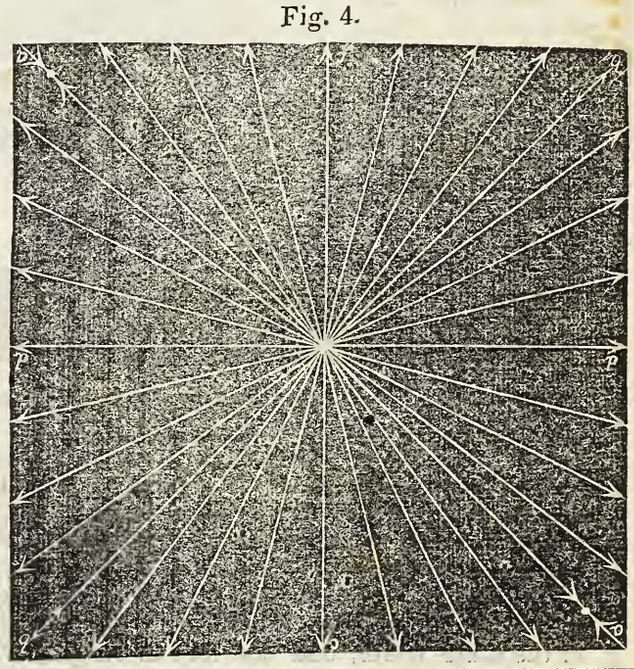
The forms in which the forces are organized depend upon a great number of conditions, which are apparently constant and uniform, among which, is the number of poles in the magnetizing body, the manner of magnetizing, and the form of the body magnetized.

When a square piece of saw plate or sheet iron is magnetized by mere contact of its flat surface on one pole of a galvanic battery, one strong pole is formed in the centre of the plate, and a weak pole, or satellite of the strong pole, in each corner of the plate, as seen in fig. 3.



If the plate is magnetized on the positive pole of the battery, the pole in the centre of the plate will

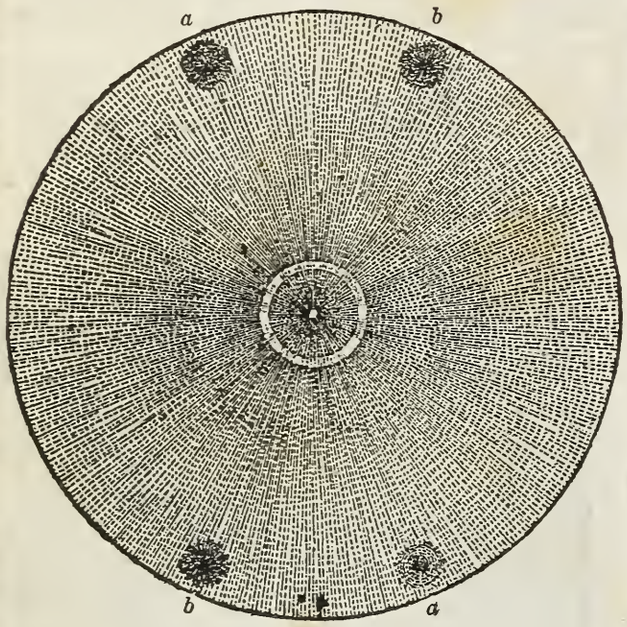
Fig. 4.



be a negative pole, to which the positive pole of the needle points, as in the above figure; but when the plate is placed on the negative pole of the battery, this order is *reversed*, when the negative end of the needle points to a positive pole in the centre of the plate, as seen in fig. 4.

Circular plates, magetized in the same manner, present the same phenomena, and when they are made with a round hole in the centre, the strong pole is always found in the *centre of the space*, in the centre of the plate. If we place a piece of white paper over such a plate, and then strew fine iron filings over it, the forces in the plate will arrange the magnetized iron filings over it, in the manner seen in fig. 5.

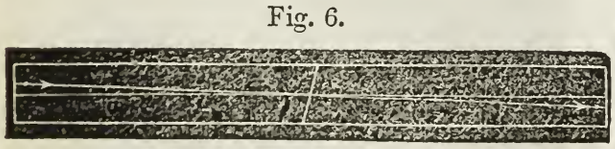
Fig. 5.



The forces from the strong pole in the centre, overcome the forces from the weak poles in the circumference of the plate, at comparatively small distances from them, and, consequently, arrange the iron filings around them in a circular manner. The poles in the circumference of the plate, as well as those in the corners of the square plates, are of opposite denominations in the order of the letters *a*, *a*, *b*, *b*, which are always changed with the order of magnetizing on the different poles of the battery.

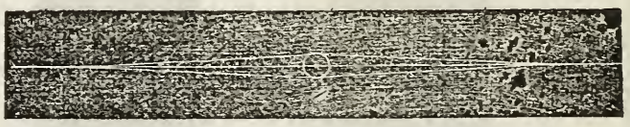
When square bars of iron or steel, (fig. 1, 2,) or plates of iron or steel, in the form of parallelograms, are magnetized in the common manner, by drawing them across the poles of a battery or magnet, two opposite poles are formed, having a magnetic axis in a direct line between the poles, and a magnetic equator at right angles to it, as seen in the plate, in the form of a parallelogram, fig. 6.

Fig. 6.



The magnetic axis in these forms is *never on a line drawn through the centre of the plate*, but are always at a greater or less angle from it, in direct proportion to the width of the plate. On measuring this angle in a parallelogram, six inches long and one inch wide, it amounted to 2° 30′; in one six inches long and half an inch wide, it amounted to 1° 15′, and in one six inches long and a quarter of an inch wide, it amounted to 37′ 30″. Parallelograms of the same width, and one foot in length, would make angles of one half of these amounts. The amounts of these angles were determined with great accuracy, and are of great importance to navigators, as they are supplied with compasses having needles of the above form, and, generally, from half an inch to one inch wide, and from six to ten inches in length, and are, therefore, well calculated to deceive the navigator in his course from 1° 15′ to 2° 30′. Many a ship, and an immense amount of property, has, no doubt, been lost from this cause, which may hereafter be avoided by suspending these needles on their edges instead of their flat surfaces, or, by using needles of another form, in which the magnetic axis corresponds with lines drawn through the centre of the needle, fig. 7.

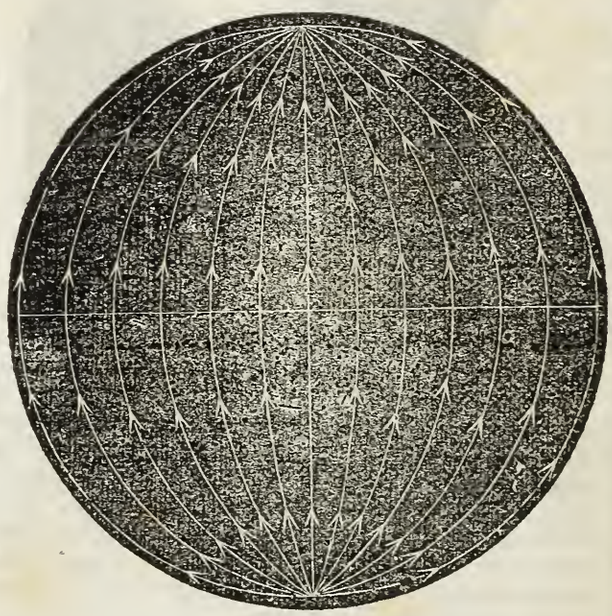
Fig. 7.



It should always be broad in the middle, and very narrow—at a distance of from half an inch to an inch from each end, in needles of a length varying from six inches to a foot; because the forces in the needle will attract the poles about that distance.

In plates of the form of a ring, or of a disc, fig. 8,

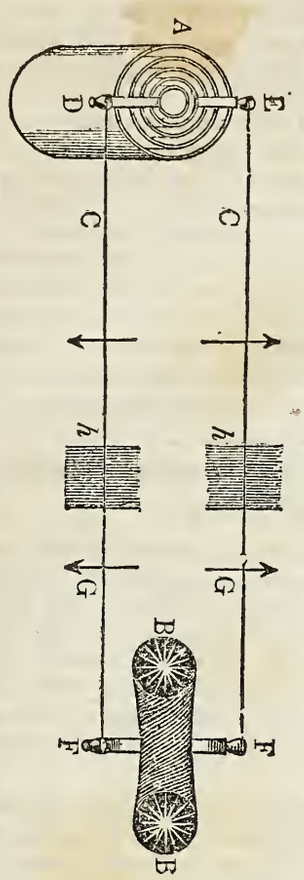
Fig. 8.



magnetized on both poles of the battery, the magnetic axis corresponds with a line drawn through the centre of the ring, or disc, and when meridian lines are drawn over the disc, the variation needle lies on those meridian lines, as seen in the figure, while the dipping needle dips around it on the opposite sides of the equator, or in the different hemispheres, with geometrical precision.

The galvanic battery was first constructed by Galvani, to concentrate the magnetic forces evolved in the decomposition of metals, and hence called a galvanic battery. It is in two parts, fig. 9. A is the battery, and B B the poles connected with it by two copper wires, C C. The battery is constructed with alternate circles of sheet copper and zinc. The circles of copper are connected at D, and the circles of zinc at E. These connections terminate in thimbles, in which mercury is placed to connect them with the copper wires and the magnet. The poles of the battery, B B, are made of round soft

Fig. 9.

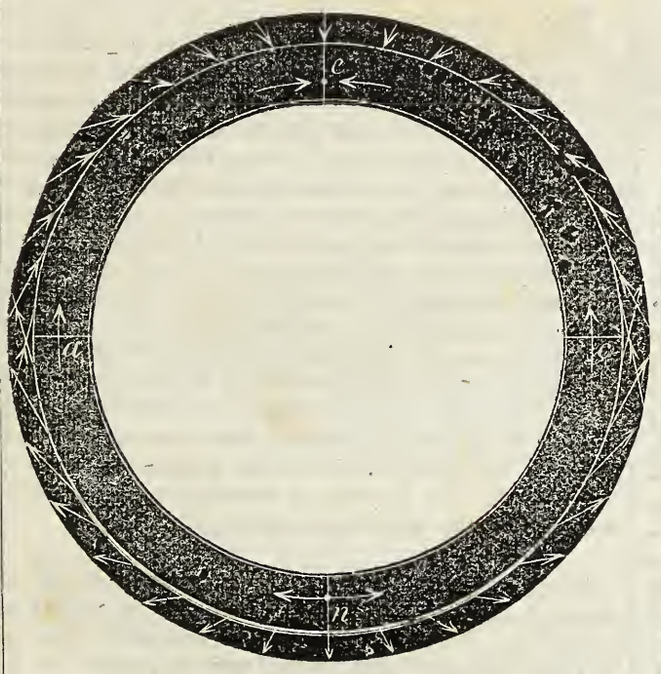


iron, bent in the form of a horse shoe, and then wound with six coils of copper wire, covered first with oiled silk, and terminating in thimbles, as seen at F F; *h h*, direction of the resultant forces, from magnetizing the copper wires.

If the battery A, thus constructed, is placed in a jar of water, in which a mixture of nitric and sulphuric acids has been poured, the acid will begin to act upon the circles of copper and zinc, and the two latent forces condensed in the metals being liberated in the process of decomposition, are attracted separately along the opposite wires to the different poles of the battery. The pole connected with the copper circles being a positive, and that connected with the zinc circles a negative pole.

Iron or steel rings, discs, and iron or steel of any other form, can be magnetized on the poles of such a battery; and one or more poles communicated from them to these metallic instruments, and from these to others. The forces are organized geometrically in the magnets, and in the magnetized ring, (fig. 10,) and produce,

Fig. 10.



by their combined action, geometric motions of the needle, by attracting one end of it, and repelling the other at the same time, as before described. The ring has two poles and a magnetic axis, *e n*, and a magnetic equator, *a c;* and the needle which lies parallel with the axis on the equator, *a c*, dips with geometrical progression to the magnetic poles in the northern and southern hemispheres of the ring, *e n*, and corresponds with the dip of the needle in the northern and southern hemispheres of the earth. The ring is a middle section of a hollow sphere, which I magnetized in the first attempt I made for that purpose, by moving it from the equator, at *a*, around to the equator, at *c*, successively on the different poles of a galvanic battery, and then drawing it across the different poles of the battery along the line of the magnetic axis, *n e*, when the needle dipped around it in the manner seen in the figure, and presented the most perfect and important instrument ever invented for demonstrating the natural laws of the mechanical forces.*

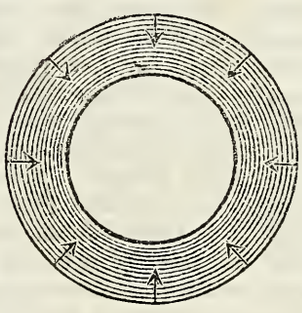
The pole *e*, to which the three arrow heads point, is a negative pole, because it attracts the positive and repels the negative end of the needle. The same, or positive end of the needle, is attracted, and the opposite or negative end is repelled from the equator to the pole, with forces which increase inversely as the squares of the distances from the equator to the pole; while the pole *n*, to which the tails of these needles point, is a positive pole, because it attracts the negative end of the needle, and the opposite or positive end is repelled from the equator to the pole, with forces which increase in the same manner from the equator to the pole.

The negative pole, and the negative or northern hemisphere of the ring, have two forces like the magnets, one of which attracts the positive at the same time the other repels the negative end of the needle. The positive pole, and positive or southern hemisphere of the ring, have also two forces, one of which attracts the negative, while the other repels the positive end of the needle; and hence the cause of the reversed order of the geometrical arrangement of the needle, in the different hemispheres.

I magnetized a ring for the first time, in May or June, 1837. Every attempt by others to do so had failed, and Dr. Peter Mark Roget, of London, who wrote the articles on Electricity, Magnetism, and Electro-Magnetism, in the Library of Useful Knowledge, founded a *mathematical* theory, conformable to observation, on the assumption that it could not be magnetized so as to affect the needle, as will be seen by the following extract from that work.—

"If a steel bar, instead of being bent in the form of a horse shoe, be formed into a complete ring, (fig. 167,) and then magnetized, it exhibits no magnetic properties as long as the ring is entire; but when broken into any number of portions, each part has two poles, and possesses all the properties of an ordinary magnet. This experiment suggested the theoretical investigation of the properties of a system of small circular currents, situated in planes, perpendicular to another circle, passing through all their centres. The result of the investigation of this problem led to a mathematical theorem exactly conformable to observation: a ring so constituted, or an *electro-dynamic ring*, as it has been called, being found, both from theory and experiment, to exert no action upon a voltaic conductor or magnet, at whatever distance from it, or in whatever situation it may be placed."

Fig. 167.



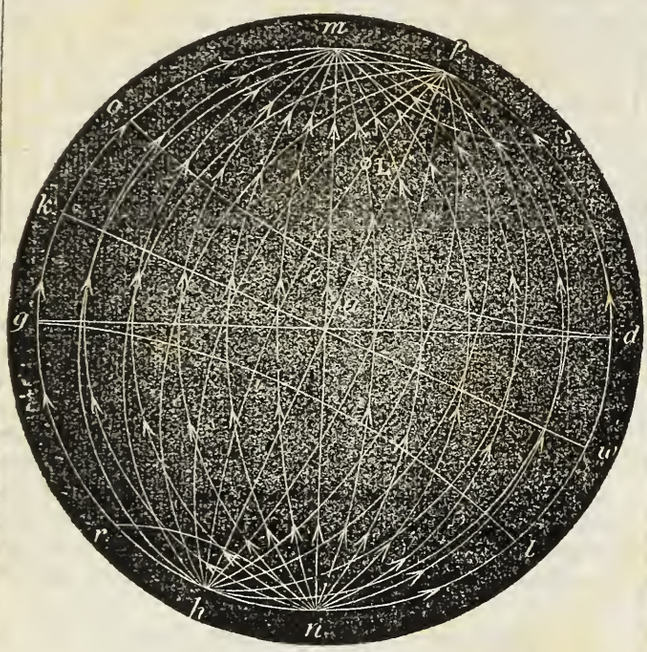
When the ring is moved over one or both poles of

* The same result is obtained by merely placing equal parts of the ring on the centre of the poles of the battery.

the battery in a circular manner only, it exhibits no magnetic properties, because the forces condensed in the ring, although excited, are not polarized by these circular motions in an entire circular form like the ring, and it has, consequently, no more effect upon the needle or magnet, after such an exhibition of the art of magnetizing, than it has before such an attempt is made.

The earth is magnetized geometrically, and has two magnetic poles, *m n*, (fig. 11,) a magnetic axis,

Fig. 11.



e, and a magnetic equator, *g d*; *p*, the north, and *h'* the south pole of the earth; *a*, the axis of rotation *k w*, equator; *g l*, tropic of Capricorn, and *o d*, tropic of Cancer.

The magnetic poles are in the arctic and antarctic circles, and move around the earth from east to west, at the annual rate of 32′ 26″, and perform an entire revolution in 666 years, and are the cause of the variation in the declination of the needle, over every part of the earth.

SOUNDING THE SEA BY ELECTRO-MAGNETISM.

Electricity is daily extending its sphere of operation, and is becoming more and more extensively applied to useful purposes. We have this week seen an ingenious apparatus contrived by Mr. Bain, the inventor of the electrical clock, for the purpose of taking soundings at sea by the Electro-Magnetic power. At present great difficulty exists, when taking the sounding in deep water, in ascertaining the exact time the weight strikes the ground. The object of Mr. Bain's contrivance is to obviate this difficulty, and he accomplishes it in the following manner. To the bottom of the hammer of a bell is attached a piece of soft iron, which is placed opposite an electro magnet, and it is so arranged that when the communication between the coils of wire round the magnet and galvanic battery is completed, the magnet attracts the iron and holds back the hammer. As soon as the connection is broken the Magnetic power ceases, and the hammer acted on by a string strikes upon the bell. This part of the apparatus is intended to remain on the deck of the vessel when the soundings are made. The insulated wires from the galvanic battery, properly protected from the action of the water, serve for the cord to which the weight is fixed, so as to complete or break the connection between the ends of the wires is extremely simple and ingenious. When the pressure of the weight bears on the hook, the electric current is uninterrupted, and the magnet keeps the hammer from the bell; but when the weight rests upon the ground, connection is broken; the attraction of the magnet instantly ceases, and the hammer being thus liberated, is forced against the bell by the spring. It would thus indicate with the utmost precision the moment the weight reached the bottom of the sea. The apparatus is to be added to the numerous curiosities at the Polytechnic institution. Its efficacy has been tested in the deep reservoir in which the diving bell descends. The inventor has been prevented from protecting his property in this invention by the expense of obtaining a patent, but, we trust, if his plan be found to succeed in practice, of which we have no doubt, that he will not go unrewarded.

Inventor's Advocate.

Lunar Phenomenon.—The Sandusky Clarion of January 29th contains the following:—

"On the night of Tuesday, the 25th instant, our attention was called to the extraordinary appearance of the moon. It was truly a singular, but most beautiful sight. The moon was at the full, or within a few hours of it. At the time, there was a thin haze in the atmosphere, and there were seven distinct circles around the moon, displaying all the colors of the rainbow, with nearly if not quite equal brilliancy.

"It is not easy to designate the different colors of the circles with exactness, but we made the following note at the time: 'Within the inner circles, a bright white, (or rather a dead white,) then a brown (circle,) then a green, then a faint blue.' The last was discernible. This appearance lasted ten or fifteen minutes after we first saw it, and it is said that a similar appearance was presented about half an hour afterward."

The Influence of Civilization upon Health and Disease.—Forrey, in his work on Endemic Influences, furnishes some interesting facts in reference to the influence which the progress of civilization has exerted upon health and disease among the population of various countries. Since 1650, all the countries of Europe, as well as the principal towns, present a gradual diminution of mortality. The value of life has doubled in London in the last century, and in many cities the probability of life to a citizen has gradually become five times greater. This increased salubrity is referable to various causes, the principal of which are the improved condition of the lower classes of society as regards food, clothing, and fuel, better habits as respects cleanliness, ventilation, and the use of spirituous liquors, and improved medical practice, especially in preventive means. The favorite opinion that poverty is conducive to longevity, is disproved by statistical investigations.

Magnetism in China.—At the last meeting of the Royal Asiatic Society, held on Saturday, it was stated by Sir Geo. Staunton, Bart., that a magnetic observatory had actually been erected and furnished by the Chinese at Pekin, on the same principle as those recently constructed by the British Government in different parts of the world according to the recommendations of the Royal Society. This is one among many other instances of the probable results that may be anticipated from throwing open an intercourse with this large, and, in many respects, intellectual country. Captain Blackwood, R. N., of her Majesty's ship Fly, 18 guns, who is about to depart in command of an expedition to Torres Straits and New Guinea, was formally introduced to the society.—*English pa.*

THE MAGNET.

NEW YORK, JUNE, 1842.

PHRENO-MAGNETIC DISCOVERIES.

We can easily imagine how unwilling many intelligent Phrenologists will be, to see our favorite science connected, in any way, with the subject of living Magnetism. The former they believe to be true; of the latter they know nothing, except the stigma in which it has been involved by the ignorance of its friends, and the aspersions cast upon it by enemies who were unwilling to give this an equal chance with the claims of other branches of science. But it will certainly change the views of such believers in Phrenology, when they come to find, as they will, sooner or later, that, without Magnetism, Phrenology is no more than a body without a soul. For, what is the brain, or its various developments, without *life?*

We once had the same objections to Phrenology, that many Phrenologists now have against the claims of Living Magnetism. But the latter subject I never doubted. From childhood I had always felt a peculiar sympathy for persons laboring under what were called nervous affections, monomania, and insanity; and, if the testimonies of many intelligent persons, in different parts of the country, may be relied on, but few have been more successful in managing and assisting in these cases, though, indeed, until within a few years, I had never heard the name of Living Magnetism. My mind was first interested in this subject by seeing persons very strangely affected by religious excitement, when they were said to "lose their strength," and swoon away as in cases of catalepsy. In these cases I have frequently known the limbs and the entire system to become perfectly rigid, and sometimes, persons have assumed to have visions, trances, &c., and I have known them to lie in this state more than forty-eight hours at one time.

These phenomena led me, some years since, to suppose the existence of laws which governed the nervous system, or some other substance, identical with the living human body, which had not been understood, and which afforded the only true foundation which could be assigned for any thing real which has ever taken place under the name of Mesmerism. Accordingly, I determined on an investigation of this subject, for the purpose of sifting it to the bottom, and ascertaining how far the nervous system could be affected by the influence of the human will. The results of my first cerebral experiments were published in the New York Watchman, in the course of the past year, and excited the attention of numerous scientific gentlemen in this city and elsewhere, many of whom have repeatedly suggested to me the propriety of furnishing an account of them, as a service due to truth and the interests of science.

That it may seem presumptuous, for one of our claims, at this age of the world, to assume to have made any discoveries in Psychology, which have remained, hitherto, not merely unknown, but not even conjectured, we can easily foresee.

However, we wish it to be understood, that though we feel *perfectly confident* that we have found some of the most important laws which govern the mental or physical exercises of living beings; yet we desire to speak on this matter with becoming modesty. We do not set up for an oracle on any subject, and much less upon Magnetism. We think, however, that we should be permitted to state, plainly, the results of our cerebral investigations, and to do this without giving offence to any one. Is there any other person but who would, himself, wish to do the same? No matter how ignorant and uninformed on other subjects—no matter how much contemned the question might be; the more so the better for the credit of him who, through so many obstacles, has been enabled to feel his way, in arriving at results as much more curious and astonishing than the discovery of the circulation of the blood, as can well be conceived.

And we have found it quite difficult to persuade ourselves, that all who shall read our accounts, will believe that we have not been deceived in these matters, and therefore are not to be credited in the principal facts. However, the writer is just as conscious that he has not been deceived, himself, as he is that he is not now deceived in the use of the pen with which these lines are written. And this is said in full view of those various hallucinations of which the human mind is capable, and the ten thousand chances for mistakes, in our attempts to analyze its untold and mysterious operations.

It might be expected, perhaps, that, in stating our own discoveries, we should first give a consecutive account of Magnetism in previous ages of the world, and point out distinctly the advances hitherto made in the principles of this science. But to do this at length, here, would leave no room for kindred subjects, to which it is necessary we should devote a portion of our work.

There are, certainly, good reasons for believing, that some knowledge of what is now denominated Living Magnetism, prevailed in Egypt more than three thousand years ago. Authors on Egyptian Antiquities describe paintings found in Thebes, and elsewhere, which represent a person in a sleeping posture, while another is in the act of making the passes over him! And it is said, the priests of Chaldea practised Magnetism as a medicinal agent, many years before the Christian era. Celcus, a philosopher of the first century after Christ, speaks of a physician, by the name of Asclepiades, who soothed the ravings of the insane by manipulations, and he adds, that his manual operations, when continued for some time, produced a degree of sleep, or lethargy.

Aristotle informs us that Thales, who lived some six hundred years before Christ, ascribed the curative properties in the magnet, to a soul with which he supposed it to be endowed, and without which he conceived no kind of *motion* could take place. Pliny, also, affirms the magnet to be useful in curing diseases of the eyes, scalds and burns, &c. And Serapon, a physician of the ninth century, speaks of its efficacy in extracting poison from wounds. In the thirteenth century, Platearius recommended the application of the loadstone to wounds: and, indeed, it seems to have been in considerable repute, some five hundred years since, as a medicinal agent. In 1638, Robert Fludd, an English physician, published a theory of the Universe, in which he attempted to account for its various phenomena by the *attractive* or magnetic power, and the *antipathy* of bodies. Man, he considered as the microcosm he held to be endowed with a magnetic virtue, subject to the same laws as those which governed the world; having his poles like the earth, and his favorable and contrary winds. He attempted to describe what produced negative or positive magnetism between different persons, and states, that when the latter subsists, diseases, and particular affections, and even the moral feelings, are communicated from the one to the other.

A work was published at Rome, in 1641, by Kircher, a German philosopher, in which the author describes the influence of this agency, not only as it is diffused throughout the solar system, but also as he believed it to exist in minerals, plants, and *animals*. We believe he is the first who made the distinction between vegetable, mineral, and animal magnetism. Similar views may be found in the "Nova Medicina Spirituum," of Wirdig, published in 1673, and the following

works:—"Medicina Magnetica," by A. Maxwell, in 1679; "Philosophia Recondita, sive Magicæ Magneticæ Mumialis Scientiæ Explanatio," published in 1723; and Thouret's "Recherches et Doutes sur le Magnetisme Animal."

Indeed, various authors, from the earliest ages, have referred to cases of disease which have been cured by similar means, and almost every sect of enthusiasts has its records of cures performed, not, indeed, by miracle, but, in some instances, it may have been, by the touch or friction of the hand; as it is well known that similar means were recommended for the cure of certain diseases long before the days of Mesmer. Nor do the people of this country seem to have any idea, how extensively the views of this French Magnetist have, since his day, excited the attention of the scientific, not in France alone, but, also, in Germany, Russia, Prussia, and other portions of the world. Among these nations, Living Magnetism has long been studied as a science, and numerous and able works have been published on the subject.

However, when we shall have become familiar with this vast subject in all its lengths and breadths; when we come to see that the Magnetic forces govern the solar system; that they explain the phenomena of light, colors, the growth of plants, and all living beings; that their all-pervading laws give the true solution of the phenomena of disease and health, of life and death; we say, when these things shall have become known, as we doubt not they will, in time, then it will be a matter of astonishment, that *Man* should have been so tardy in arriving at the true knowledge of his nature, and the principles of his own being.

It is now scarcely fifty years since Galvani first demonstrated the animal body to be a galvanic machine, and a far less number of years since the suggestion was made by Dr. Arnott, that the brain was an electric battery. And, yet, how little use has thus far been made of these important and truly philosophical suggestions! And this seems the more surprising, when we examine the evidence which every where meets our eyes, demonstrating the Magnetism of all living bodies.

Since our own Magnetic discoveries were made, we have seen and read with much interest two works, among others, which we cannot forbear noticing in these remarks, approaching, as their authors appear to have done, so very near the truth, on the subject of Magnetism; and we should add, they not only approach the truth, but in both we have much valuable matter, which goes very far towards demonstrating the identity of animal life and Magnetism. The first was written by P. Cunningham, (R. N.,) and published in London, in 1834, in which the author attempts to show that two simple elements, Electricity and Magnetism, not only produce all the revolutions and changes in the earth and the heavenly bodies, but, also, the conception, growth, and decay of every living animal, or vegetable substance, throughout the globe.

The other was published in Paris, in 1836, and is entitled, "Enquiry into the Nature and Effects of the Nervous Influence, and its Connection with the Vital, Moral, and Intellectual Operations." In this work, the writer, whose name is not given, assumes, and gives many plausible reasons to show, that the material agent upon which the immaterial spirit operates, is a subtle and mobile fluid, of an electric nature, of which the brain and the nerves are the conductors. And the author adds, "I am inclined to think that the means by which these operations are performed, may, perhaps, be within the reach of our knowledge, and be developed when the science of Anatomy, Physiology, and Chemistry shall have arrived at a greater degree of perfection."

One of the most important discoveries which we claim to have made, is the very mystery here referred to. The results of our experiments, as we think, give a most curious and satisfactory explanation of the manner in which mind acts upon matter, and how it is that the muscles and limbs are made to obey the human will. They do more; they explain how it is, that one mind acts upon another, and by what process one person is able to exert an influence, good or bad, over his fellow beings.

In 1838, Dr. Henry H. Sherwood, of this city, published an interesting work, demonstrating that motion is produced every where by the action of the Magnetic forces; and also, that one of these forces *repels* and *expands*, while the other *attracts* and *contracts;* and by magnetizing a steel ring he further showed, that the action of these forces is *geometrical;* and that the earth is magnetized geometrically, and has two Magnetic poles, one in the arctic, and the other in the antarctic circle, and that they move from east to west at the annual rate of thirty-two minutes and twenty-six seconds. He has also given some plausible reasons, showing the Magnetism of the Human system, and the polarity of the brain, which may be seen in his work entitled, "Motive Power of Organic Life," a new edition of which was published the past year.

Nothing, probably, has done more to bring the subject of Living Magnetism into disrepute, in this country, than the manner in which the subject has been treated by many of its friends. Public attention was first called to it under a most hateful name, and the many silly stories put in circulation about its wonders, could but arouse prejudice, and unfit the minds of candid people to give it a favorable reception. No one but a person of known and tried integrity should attempt to exhibit, or defend any science, especially if it be one of recent discovery. To say the least, it is extremely unfortunate for truth, when its claims are advocated by any but its real friends, those that are such in heart and life.

But we may be asked, we know, what shall be done? Ministers of religion and professed christians stand aloof, or oppose, and hence the characters of many who have engaged in the defence of Magnetism, have raised a false issue, and, of course, brought it into disrepute. It is a burning shame that candid people, who want to be informed in Magnetism, should be compelled to attend the public exhibitions of this abused subject, which are often got up for making money, and to gratify the idle curiosity of the gaping multitude.—But, for the benefit of truth and science, it is to be hoped, that the attention of intelligent people will soon be sufficiently interested in this subject, to be able to wrest it from these abuses, and place it where it evidently belongs, among the agencies which the beneficent Creator has ordained for the relief of suffering humanity.

The editor of this work believes himelf to have been the first in this, or any other country, to use Living Magnetism as a means for *Physiological and Phrenological discoveries.*—And, though almost any other person might have found out the same results had he made use of the appropriate means, yet many will doubtless turn up the lip at our statements, who, themselves, would have considered it an immortal honor to have enjoyed the facilities which have so richly crowned our humble inquiries after truth. And, if we feel thankful for any thing, we are grateful for that knowledge God has brought within our reach of the *human mind.* And hence, we are not at a loss to account for the views which prevail against what we have already published on this subject. We are not surprised, nor mortified, when we meet with contumely instead of thanks; nor when we see a sneer where we might justly expect a word of approval and encouragement.

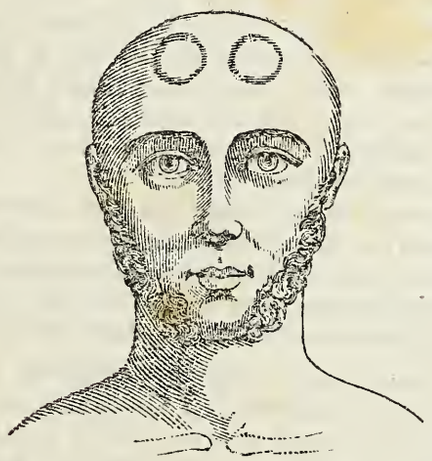
We have lived long enough to understand the true causes which bring about these results.

The details of the interesting and curious phenomena produced by our experiments, will be given in the succeeding numbers of this work. It must suffice for us now, to state, that they demonstrate, as we believe, the following assumptions:—

I. The Magnetic Nature of Living Bodies.

That every living being possesses a *Magnetic Nature*, which constitutes its LIFE. This nature is not the Nervous system, but it is governed by the two magnetic forces, without which the nerves have no sensation or motion, either physical or mental. The strength and proportions of these forces, in certain parts of the system, (other things being equal,) make the difference in the *Temperaments*, and, also, in the *physical strength* and *mental exercises* of different individuals. What is called *instinct* in animals and insects depends, wholly, upon the strength and proportions of these magnetic forces. For, as they increase in number and power in any living body, we shall find the mental developments and intellectual power increased accordingly. And it is a most remarkable and interesting fact, that two of the larger forces of the human brain have their poles located in the organs of *Causality*, those very faculties which not only distinguish *man* more than others from all other living animals; but the size of these organs, (others in proportion,) as is well known, distinguishes the *intellectual* performances of one mind from those of another. Franklin, Rush, and Newton had these poles very strong, and whoever has noticed the busts of these distinguished men, will have observed how prominent their organs of Causality are where these large poles are located.

The cut below gives the location of the two large poles in the front part of the brain; and by fig. 5, on a preceding page, (4,) the reader will see a representation of the corresponding poles in the cerebellum, as also the great pole in the centre of the brain.



II. Polarity of the Mental and Physical Organs.

The brain has five *large* poles, corresponding with five others in the heart. And, with these large poles, there are consecutive poles throughout the entire system, connected with every mental and vital organ, and with every muscle and portion of the body which is concerned in the production of voluntary and involuntary motion.

All the organs and muscles of the system are connected with the magnetic forces from the brain, so that while the heart is the great fountain of *vitality* to the system, the brain is the organ of *thought* for the mind. And each vital and mental organ has its corresponding pole, positive and negative, and these *sympathetic points* from the different organs are all located in the face and neck, so that by operating either on these sympathetic points in the face, or the poles of the organs in the brain, I can *excite* any mental or physical action, and remove it, at pleasure, as the condition of the patient may require.

For instance, by operating on one portion of the brain, I produce, in the mind of the patient, the feeling of Self Esteem; by operating on another portion, I produce the feeling of Gratitude; on another, the feeling of Joy; on another, the feeling of Filial Love; and so of every emotion or sensation which is peculiar to the human mind. And thus, also, of the physical organs. The *sympathetic points*, corresponding with the lungs, are located in the face, where you will see the hectic flush, in cases of pulmonary consumption.—The points (or poles, it may be,) of the organs of smell, are located at the lower part, each side, of the nose, and by operating here, I excite the corresponding organ of Smell. The sympathetic points of Mirthfulness are located in the corners of the mouth, and when I operate on these points, they are drawn up in the act of laughing.

This discovery gives the only true foundation for *Physiognomy* and *Pathognomy*. It shows how it is that the MIND excites the organs, and, also, how it is that the mental faculties excite one another, and when they are in exercise, it shows how it is that they produce the appropriate expression in the eyes, and features of the face. Think of it, reader! And then say what could be more interesting than a knowledge of these laws, which, as it would seem, have remained hidden for six thousand years, by which the MIND looks out in the face, and expresses its emotions through the organs of clay!

This discovery enables us to tell you how it is that the feelings of the mind are conveyed in the tones of the voice; and by what process the health is affected by the exercise of the intellect;—in a word, it gives the only true and satisfactory account of the manner by which mind and matter are connected, and reciprocally act upon each other. And thus I am able, by operating on the poles of the organs, to cause the patient to feel the strongest emotions of *Hope*, *Fear*, *Courage*, *Mirthfulness*, or in fact, any feeling appropriate to the human mind.

I have, times without number, produced *Sleep*, *Somnambulism*, *Monomania*, *Insanity*, or *Madness*, and removed the excitement at pleasure. By operating upon the sympathetic points in the face, I have produced, or suppressed action in the heart, lungs, liver, spleen, kidneys, stomach, larnyx, &c., or any muscle or limb in the system; and by the same means I have found the nerves of sensation throughout the system may be excited or paralyzed, and to a degree truly astonishing to such as have never seen these most interesting phenomena.

I have often removed, in a short time, great nervous excitement, and by the same means *relieved* persons who have suffered for years from troublesome dreams and a want of refreshing sleep.

III. Groups and Pairs of Organs.

Another most interesting discovery I have made, is, that the Phrenological organs not only exist in groups, corresponding with the nature of their functions, but most, if not all of them, in *double pairs*, and some in *triple* and even *quadruple pairs*; and *the uniformity and beauty of the groups, corresponding, as they do, with the consecutive sympathetic points in the face*, is more interesting than I can find language to describe. Never was I so profoundly impressed with a sense of the wisdom of that great and good Being, as on finding the location and grouping of the different *pairs* of organs, *with their corresponding sympathetic points in the face.*

Thus, for instance, I find in one group those which relate to *Attachments;* in another, those which relate to *Home and Country;* in another, those which relate to *Will, Decision, Justice,* and *Government;* in another, those which relate to the *Deity and a Future State;* in another, those which relate to the *defence* of ourselves, and the *preservation* of our own *lives.* And all the corresponding poles of the perceptive faculties, together with Sublimity, are located in the eye; and the poles of the affections are located around the mouth!

There are two pairs of *Individuality,* one taking cognizance of things and the other of persons; two of *Eventuality,* one pair taking cognizance of recent, and the other of ancient events; two of *Comparison,* one pair for ideas, and the other for things; two of *Benevolence,* one for *giving,* and the other for *pity;* two of *Veneration,* one for the Deity, and the other for man; two of *Firmness,* one relating to conscientiousness, and the other for perseverance, etc.; two of *Self Esteem,* one for the HUMAN WILL and self government, and the other for the government of others; two pairs for *Fear;* two for *Music;* two for *Place,* and so of the organs of *Conscientiousness, Belief, Gratitude, Amativeness;* three of *Marvelousness,* one for *Faith,* one for *Human Credence,* and another for anticipating future events; and three for *Secretiveness,* one for *Disguise,* one for *Keeping Secrets,* and the other for *Cunning,* as is seen in the cat and fox; in the group of *Acquisitiveness* there are three, one giving a desire for *Money,* one for *Keeping,* and one giving a disposition to *Traffic;* in the group of *Approbativeness,* there are four, one giving a regard for *Character,* one giving a desire for *Praise, Notoriety,* one giving a sense of *Ridicule,* and another giving a desire for *Show,* and when large, giving *Vanity.*

IV. OPPOSITE ORGANS—POSITIVE AND NEGATIVE.

Another important fact, deeply interesting to Phrenologists, which is demonstrated by my discoveries, is the *opposition* of the different mental organs. My experiments have proved that the organs are balanced by *positive* and *negative poles;* and that their functions are in opposition to each other is certain. As, for instance, one organ is for *Joy,* another for *Sadness;* one for *Love,* another for *Aversion;* one for *Self Government,* another for *Submission;* one for *Forgiveness,* another for *Retribution;* one for *Patience,* another for *Discontentment;* one for *Courage,* another for physical *Fear;* one for *Confidence* in man, another for *Suspicion* or *Jealousy;* one for *Ancient,* another for *Recent Events;* one giving a desire to see *Old Places,* another for *New Places,* or traveling; one for *Destructiveness,* another for *Preserving;* one for *Keeping Secrets,* another for *Loquacity;* one for *Opposiveness,* another for *Suavity;* one for *Self Esteem,* another for *Humility;* one for *Praise,* another for *Censure;* one giving a sense of *Dependence,* and another giving a sense of *Independence;* &c., &c.

This discovery gives the true solution of various shades in the characters of different individuals, which have never been explained, either by Phrenologists or in any system of mental science heretofore offered to the world. And how beautifully this fact agrees with the arrangements of nature, to which we have before referred. There are two magnetic forces, *positive* and *negative;* one repels and expands, the other draws and contracts. And by these forces all the functions of the human system are carried on, not excepting the exercises of the mental organs. For how else could these organs be exercised at all? Should they be subject to one motion, merely, only in one direction, it would be insanity, or madness. The organ of Joy, for instance, is counterbalanced by an organ of Sadness. Were one of these organs to be exercised without another to check it, Monomania would be the result, and so of the others.

V. CORRESPONDENCE IN THE POSITION AND FUNCTIONS OF THE ORGANS.

It had long been known to Phrenologists, that the lower the organs in the head, the more their functions corresponded with the propensities common to the animal creation. But my experiments have demonstrated, that one pair of the same organs is more elevated and refined in its functions than the pair below it. Thus, I find, the first pair of Amativeness are common to animals; the pair above are appropriate to intellectual enjoyment. The lower organs of Comparison take cognizance of things, the upper ones compare ideas; the lower organs of Causality are exercised on things, the upper on metaphysical subjects. And it is a remarkable fact, that from mere animal instincts, which relate to the preservation of life, and selfish gratification, the organs not only ascend in the head, but also in the nature of their functions, till we come to the highest, which take cognizance of our relation to the *Deity,* and a future state, not excepting one which is appropriate to calculating, or perceiving future contingencies!

VI. NEW PHRENOLOGICAL ORGANS.

While our experiments have, in a most remarkable manner, confirmed the discoveries of the immortal Gall, they have brought out and demonstrated the existence of new organs, among which are the following, viz.:—*Humility, Joy, Gratitude, Patriotism, Jealousy, Modesty, Aversion, Smell, Taste, Pity, Cheerfulness, Weeping, Contentment, Wit,* as distinguished from *Mirthfulness; Melody,* as distinguished from *Harmony; Retribution,* as distinct from *Destructiveness; Method,* directing as to the *Manner* in which things should be done; *Regularity,* as to time and order; *Disguise; Praise; Filial Love; Love of Pets,* as distinguished from *Philoprogenitiveness;* besides the pairs of the organs already described, which, as will be seen, more than double the number heretofore supposed by Gall, Spurzheim, Combe, and others.

Thus I have given a concise account of the results of the first cerebral *Magnetic* experiments, so far as I know, ever attempted in this or any other part of the world. These discoveries are *real,* and *founded in the nature of man,* and *they will ultimately be admitted and advocated, as their importance demands.* And to have been an humble instrument in first making these facts known to the world, affords me more pleasure than I could ever derive from silver or gold, or all that this earth can afford.

No accounts of any similar discoveries, as far as we know, have ever been published, in this or any other country. Our experiments have been so often repeated, and for such a length of time, upon different subjects, that we now feel fully authorized to assume the above positions.

After commencing my Magnetic experiments, I proposed to two scientific gentlemen,* of this city, to assist me in conducting them, and it gives me pleasure to acknowledge the aid which their kindness has afforded me in this interesting work. And the results with which these experiments have since been repeated by others, in different parts of the country, have, I think, sufficiently confirmed these assumptions, and left no room to doubt as to the influence which Magnetism is destined to exert, in exhibiting and proving the true SCIENCE OF HUMAN LIFE throughout the world.

In future numbers of the Magnet, we shall give full descriptions of the particulars here alluded to, accompanied with plates showing the location of the mental organs, and the poles or sympathetic points of the human system.

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* Dr. H. H. Sherwood, and Mr. O. S. Fowler, Phrenologist.

ELECTRO-MAGNETIC PHENOMENA.

There is no phenomena, but which if properly understood, would lead to a knowledge of the magnetic forces. That they pervade all matter, is susceptible of the clearest demonstration. Indeed, it is worthy of notice, that some of the most learned and scientific, have long since explained various natural phenomena, by the laws of magnetism, or electricity; and, from the attention already given to this subject, there can be no doubt but the time is near when it will be turned to some of the most useful purposes of life.

Out of a large number of facts of a similar kind, we have selected the following, with a view of calling that attention to the subject, which may assist in settling the laws which govern the electrical or magnetic forces, in the cases to which reference is made; for we have no doubt, but there are yet many useful discoveries to be made, in connection with this subject, which will confer lasting benefits upon the human species.

A very interesting case of poisoning is reported from the Middlesex Hospital in the *London Lancet*. A man was admitted a short time since into that hospital about six hours after having taken an ounce of laudanum, containing twenty-six grains of opium. At the time of admission he was apparently lifeless, the surface of the body was cold, countenance pale and livid, lips purple, pupils contracted to a mere point, respiration was scarcely perceptible, pulse hardly to be felt. The laudanum was removed by the stomach-pump, but, in spite of every exertion, the pulse became more unfrequent, and was at times imperceptible, when recourse was had to electro-magnetism, which was applied by means of a small battery, with coil and contact breaker. One wire was applied to the neck and the other to the region of the heart, or epigastrium, and by these a succession of very powerful shocks was given. The good effects were very apparent. The muscles of respiration were set in action, and the diaphragm contracted powerfully; the chest was more fully expanded, respiration was more perfectly carried on, and a corresponding improvement was observable in the countenance. The pulse improved and became more powerful, becoming steady when the current was interrupted for a few minutes. This application was continued for several hours, and was finally successful—thus clearly establishing the influence of electro-magnetism under circumstances hitherto considered hopeless.

It has, for a long time, been a standing opinion among medical men, that the lungs of living beings generate heat by the chemical action supposed to occur during respiration, of an absorption of oxygen and an expulsion of carbonic acid gas. Among the many innovations, in these times of new and strange things, is that of a denial of the old, and long-considered fundamental doctrine of the generation of animal heat. Mr. Macilwain, in a recent work published in England, "On Respiration, and its relation to Animal Temperature," from many experiments and known facts, comes to the conclusion that the theory cannot be sustained. Professor Miller, of Baltimore, has for some time entertained views peculiar to himself on this subject, or rather upon the arterialization of the blood, the change of which from venous to pure blood is in consequence, he says, of a magnetic action. From experiments, he finds that a stream of electricity passed through dark venous blood, will change it at once to a rich colored arterial fluid. Highly important deductions rest upon the satisfactory explanation of these phenomena. If animal heat is not derived from the absorption of oxygen during respiration, from whence is the constant supply which must go to make up the unremitted escape of it from the body?

And, the same remark might be made, concerning animal *strength*. How shall we account for its increase and diminution in given cases, but upon the supposition that it is subject to similar laws? Why is it that an expenditure of physical strength usually increases the action of the lungs?

It is stated in a foreign paper that M. Fourcault, a French Physician, has recently made some important discoveries and experiments, which go to show that an important means of preserving or restoring health is, *a due attention to the access of air to every part of the external surface of the body.* He succeeded in producing at pleasure, in animals, before healthy, suppression of perspiration, conjections of the blood, the derangement of the internal organs, affections of the heart, and the foundation of aggregation of matter in the lungs, analogous to the tubercles in pulmonary consumption, and even death itself as the consequence.

The means by which he arrived at these results was the simple prevention of the access of air to the skin, which, by checking the functions of perspiration, caused the matters usually carried off through their agency, to be thrown back upon the internal organs.

It has long been known that a stream of water issuing from a vessel, has a spiral motion, which, it is believed, is attributable to the mysterious laws of magnetism. And if water be permitted to run out through a hole in the bottom of the vessel that contains it, a vortex will be formed in a direction contrary to the course of the sun. This is said to be invariably the fact; and if the water be forcibly made to whirl round in the opposite course, yet as soon as the opposing power is removed, it will begin to turn contrary to the sun. And a scientific gentleman who recently noticed this fact, imputes it to the rotation of the earth on its axis, and deduces from it a method of finding the latitude of places.

The spiral motions of vines and certain kinds of beans are well known; and many persons have noticed, with what regularity certain flowers follow the sun, without ever suspecting the true cause of the phenomenon.

Although philosophers, as Brougham remarks, are not agreed as to the peculiar action which light exerts upon vegetation, and there is even some doubt respecting the decomposition of air and water, during that process, one thing is undeniable—the necessity of light to the growth and health of plants; for without it, they have neither color, taste, nor smell; and, accordingly, they are for the most part so formed as to receive it at all times when it shines upon them; their cups and the little assemblages of their leaves before they sprout, are found to be more or less affected by the light, so as to open to receive it. In several kinds of plants this is more evident than in others; their flowers close at night and open in the day. Some constantly turned round towards the light, following the sun as it were, while he makes or seems to make his revolution, so that they receive the greatest quantity possible of his rays—thus, clover in a field follows the apparent course of the sun. But all leaves of plants turn towards the sun, place them how you will, light being essential to their well-being.

Indeed, this winding motion may be seen in other things. A celebrated æronaut, (Mr. Wise,) who recently made a successful ascension from Danville, Pa., says, that he found the atmosphere much colder in crossing the mountains than at the same height in crossing level and cultivated land. When sailing along with a steady current, when the balloon is in equilibrium, *it revolves slowly;* and on this occasion he observed particularly the regular pulsation that it moved with. The less motion he produced in the car the more regular were these vibration: whenever the balloon, by the discharge of ballast or gas, would ascend or descend, the pulsation was sufficiently arrested not to be observable. They worked at intervals of two and a half seconds, and made a

revolution in fifty seconds. The cause of dizziness, he says, is destroyed by isolation.

This winding course of the electric fluid has been often noticed. The Rutland Herald, (Vt.) gives an account of a thunder shower, when a very tall pine tree was struck in that vicinity. The fluid struck the top of the tree and descended in a *winding course* to within about 20 feet of the ground, where it was completely severed and the upper part fell to the ground in as perfect and perpendicular a position as it stood in the first place, and penetrated so far into the ground as to give it the appearance of firmness sufficient to withstand a heavy gale. The part standing was nearly 100 feet high. The stump was rent into many pieces, and strewed in every direction, some to the distance of near 40 rods, others, perhaps 20 feet long with parts of the roots, and of immense weight, several rods. The diameter of the tree where it was severed, was near three feet, and near the ground probably four feet.

It is now some time since it was discovered that electricity accompanies the generation of steam; and the Newark Daily Advertiser speaks of a gentleman in that city who has made a series of experiments, and registered observations, which go to show that the generation of electricity constantly attends the generation of steam, and that it is the presence of this agent which produces explosion in a great majority of instances. The application of this discovery to the protection of boilers is, it is said, perfectly simple, all that is necessary being a conductor to carry off the superabundant electricity. His experiments, we understand, are of a most curious and interesting kind, in a scientific as well as in a practical and beneficial light.

In our future numbers we shall give some accounts demonstrating the polarity of the rays of light. For, that this earth is magnetized by the sun, is as susceptible of demonstration as any problem in the works of Sir Isaac Newton. Nor can there be any doubt but that Magnetism, or Electricity, gives color to every thing.

We see it stated in a recent English paper, that Mr. Baggs, a gentleman well known in the scientific world for his researches in electro-chemistry and other branches of electrical investigation, has discovered a method of applying the oxides of various metals to the purposes of dyeing cotton cloths, by the agency of electricity, and in such a way that economy, rapidity, and variety of pattern and tint, are all allied to the *ne plus ultra* of the art—fast colors.

We have time, now, merely to call attention to facts like the foregoing. We hope to receive communications from some of our intelligent correspondents, detailing others of a similar kind, for our future numbers.

Correspondents.—We are happy to hear from the friends of science in different parts of the country; and it affords us equal pleasure to give information, whenever it may be desired, when it is in our power to do so. But it will occur to any one, on reflection, that it will scarcely comport with justice, for us to be taxed with postage on letters, from day to day, on business which is of no possible profit to us, but which is for the sole benefit or gratification of others.

We have received numbers of letters, asking for advice and information on the subject of Magnetism, on which the postage was not even paid, to say nothing of the tax which it would be on our time to answer them all. We must, therefore, adopt it as a rule, hereafter to take no letters from the Post Office which are not paid. And, where advice or information is desired, it will be given in the columns of this work, except in *special cases;* and in these cases compensation will be expected, in proportion to the time and attention given to them.

Communications for the Magnet.—Articles for this work are earnestly desired from those who have important facts to communicate; and we hope for assistance of this kind from different parts in this country, as well as from Europe. All well authenticated facts connected with the causes or cure of Insanity, and other mental phenomena, and such as show the efficacy of Magnetism as a medicinal agent, will be acceptable. We hope that Physicians, and others, will give such accounts of cases of nervous disorder as may tend to shed light on the pathology of Living Magnetism, and assist in ascertaining the laws by which it is governed.

The Magnetic Forces.—We ask the special attention of our readers to the article with this title, on the preceding pages, from the pen of Dr. H. H. Sherwood, of this city. It is a subject with which Dr. H. has been quite familiar for some years, and we are authorized to promise our patrons a number of other articles from him, in which he will adduce some interesting facts demonstrating the Magnetism of the human system.

To Navigators, especially, and all who wish to understand the mysterious forces which govern the Magnetic needle, these articles must be exceedingly attractive.

Our Terms.—When it is considered that each of our numbers will contain a greater or less number of plates, it will be seen that our terms are *extremely* low. These cuts would very much increase the price of the Magnet, as they have our expense in getting it up; but we look for a sufficient number of subscribers to meet this extra cost.

To the Friends of Science.—The circulation of this periodical must, necessarily, depend on the co-operation of the few. You know how difficult it is to get persons to read on the subjects to be discussed in these pages. You know how deep rooted and wide spread the prejudice is which we shall have to encounter. What is done, therefore, to extend our circulation, must be done by the few, who have eyes to see, and hearts to appreciate the importance of this work. May we not hope, then, that all such who may obtain any knowledge of this undertaking, will immediately commence the work of procuring subscribers. Give us the patronage which the importance of our object demands, and we promise a monthly, filled with more interesting matter, than it has entered into your heart to conceive.

Date of the Present Number.—We have issued our first number in advance of its date, for two reasons:

1. To afford the necessary time for getting out the plates, and making the necessary arrangements for going on with the work.

2. To give all concerned sufficient time to procure and forward to us, the necessary number of patrons. Thus far we have received many good wishes; and as we have now made a beginning, we hope, forthwith, to receive a large list of paying subscribers.

The Name of our Work.—We have called this periodical the Magnet, because we find no name, which, on all accounts, seemed quite so appropriate as this. We design it shall be not merely *Anthropological* in the strictest sense of this word, but, as will be seen, it will include the interesting and important subject of Astronomical Magnetism.

Physiology and Phrenology are but branches of the same great subject to be discussed in our columns. But *Magnetism* is the all-pervading *soul* of the whole. There is no life in Phrenology, or Physiology, or any thing else, without Magnetism. Hence our name, "The Magnet."

New Discoveries.—Though the editor of this work believes himself to have been the first who ever made use of *Magnetism* for the purpose of Phrenological *discoveries*, yet it would seem, that quite a number of others are somewhat anxious to share this honor with him. We have seen the names of two different persons, referred to in an exchange paper, as having been the first to discover the connection between *Magnetism* and Phrenology! And this, too, for the first time, nearly one year after the accounts of our own Magnetic cerebral discoveries had been published to the world! Of course, it is an easy matter for one to find gold, after the mine has been discovered and opened by another. But, before it can be consistently assumed, that similar *Magnetic* discoveries to our own, were previously made by another, it must be shown that the accounts of them were *previously published*, and at the time they were made. This is what we did, about one year ago. And, we are confident that nothing of the kind had ever been heard of till long after our experiments were commenced, which resulted in the discoveries described in this work. In the New York Watchman for August and October, 1841, were published the accounts of the first *Magnetic* cerebral experiments, as far as we know, that ever were performed, in any part of the world. What discoveries may have been made by others, since, (and following in our wake,) we, of course, do not know; nor indeed, are we anxious to deprive another of the credit of having made a discovery of the same thing, a year or more *after* we had published the account of it to the world. For notices of our discoveries have appeared in more than one hundred different papers, in every part of the country, and they have also been published in France and England.

We have seen allusions in the papers to some experiments in Neurology, as it is called, which Dr. Joseph R. Buchanan, of Louisville, Ky., performed more than a year ago. As far as we have been able to learn, Dr. Buchanan's experiments have merely demonstrated the excitability of the different organs; and it should be added, that he *disclaims* having done any thing by the influence of Magnetism. The following is from a letter we received from him, and which was published at the time in the New York Watchman:—

"I have *not* been engaged in making experiments upon subjects in a *magnetic* or somnolent condition, but solely upon persons in their *natural* condition.

Those who know me will not suspect me of endeavoring to avoid any *stigma* which an unenligtened and tyranical public sentiment may fix upon the votaries of science for seeking prohibited knowledge. I honor the cultivators of Animal Magnetism as the intrepid leaders and benefactors of their race; and had I not a peculiar line of investigation for myself at this time, I would be actively engaged in the daily investigation of that subject.

Disregarding the very meaning of the word Neurology, and probably unacquainted with its derivation, ignorant scoffers would repeat that this science was nothing more than the old story of Animal Magnetism, clairvoyance, &c.; others will assert that it was totally unlike—both confounding the *science* of Neurology with the experiments by which it was demonstrated. Some, by a singular combination of scepticism and credulity, were even led to adopt the laughable theory that I produced the wonderful results of my experiments by the mere power of my will, controlling every one whom I approached! and compelling them to feel such emotions as I willed them to experience!!

The experiments which I am performing are different, as they are simply designed to illustrate the ordinary or normal functions, and the pathology of the human mind and body. My operations aim at utility by explaining the machinery of life and the powers of each organ; those of animal Magnetism develop extraordinary or transcendental phenomena by the joint influence of two or more individuals. The phenomena thus developed are mysterious and wonderful; and indeed we seem in a fair way to realize through these operations, that "truth is strange—stranger than fiction."

To all who are engaged in this great work, I would say, the field is ample enough for a million of laborers; and should our countrymen take the lead, and maintain it as we have begun, we may make the amplest return for the stores of medical and philosophic knowledge which we have derived from the land of our ancestors.

Jos. R. Buchanan.

Louisville, Kentucky, Feb. 22 1842.

P. S. I am desirous to keep distinct in the public mind, the principles of *Neurology*, and the experiments, by which they are produced, which bear some *resemblance* to those of Animal Magnetism. I hope you will keep your readers clear upon this point."

That Dr. Buchanan has made a discovery of what he calls *Neurolvgy* is clear; and while he disclaims having done so by Magnetism, it was desirable, certainly, that he should have stated by what means his experiments were performed.

When we first operated on the seperate organs by Magnetism, we had not heard of any thing of the kind, in any other part of the world, and even now, it does not appear that Dr. B. or any other, has had any idea of the results of our Magnetic experiments described in this work. True, we have excited the organs, when the person was awake; but we did it by Magnetism, and not by operating on the *nerves*, as Dr. B. affirms he does.

And here we draw the line of distinction between our own discoveries in *Magnetism* and *Phrenology*, and the mere excitement of the separate cerebral or physical organs, as it seems Dr. Buchannn and some in England have done, together with myself, nearly simultaneously. But Dr. Buchanan's experiments and our own, need not be confounded. His, according to his own account, are confined to the *nervous* system; ours have to do with man's *magnetic nature*, and the laws by which it is governed, the plurality of the *pairs* of organs, and the magnetic *poles*, the *opposition of different organs*, etc., and not merely to the possibility of exciting the organs, and as to their precise number, though indeed, we have demonstrated, as we think, the existence of a number not before discovered, as stated in a preceding article.

Experimenting.—It occurs to us, that we ought to suggest a caution to persons who may feel anxious to witness the experiments referred to in the preceding pages of this work. We give it as our serious conviction, that they should never be attempted, except for good and justifiable reasons; and then only by persons who are familiar with the nervous system. That some of them are attended with danger, we *know*. Even *Somnipathy*, (the Magnetic sleep) should not be attempted from curiosity, merely, and especially not by one who is unacquainted with the subject. We have know serious results to follow, when persons have been operated on, from curiosity. And, some of the experiments to which we have referred, if continued a moment too long, and not conducted properly, might occasion instant death.

Theories.—Let it be borne in mind, that the grand object of the Magnet is not the establishment of *theories* of any kind, but to elicit truth—to gather and make known such facts as may enable the intelligent inquirer to decide for himself as to what the laws of Terrestrial and Living Mag-

netism are. True, we think we have discovered a few of them, but there is much yet to be done; years of investigation will be necessary before we shall find this subject generally admitted among the exact sciences.

The subject is profoundly interesting, and embraces matter enough to employ the most acute and able minds for ages yet to come.

Public Exhibitions.—We cannot approve of public exhibitions of the magnetic sleep. They are liable to serious and insurmountable objections; and many of them, we know, have done much to bring the subject of Magnetism into disrepute. And, it should be known, that the most intelligent of all clases, who know any thing of this subject, never did approve of persons traveling about the country, carrying subjects with them, or when they attempt to operate for mercenary purposes, or to afford an object for the multitude to gaze at.

The wonder is not, merely, that any person of good character could adopt such a method for making money, but that any should be found willing to be operated on in this way.

But it unfortunately happens, that this is not the worst side of the picture; for we speak what we know, when we affirm that some, who have gone about the country, pretending to exhibit this subject, have been scarcely at all acquainted with its first principles; and we are sorry to feel compelled to add, that one whom we could mention, has more than once, used the grossest deception, under the name of Magnetism. And we feel it our duty to let the world know, that we have no connection with such proceedings, and sincerely regret the great mischiefs which have been done by them to the cause of truth and humanity.

CORRESPONDENCE.

LETTER FROM REV. C. H. TOWNSHEND.

Dresden, (Saxony,) Jan. 14, 1842.

My Dear Sir:—Your flattering and interesting letter, has, at length, after many wanderings, found its way to me; and I thank you, sincerely, for this kind proof of your good opinion. It is quite delightful to find a person really interested in so debated a subject as Mesmerism, and bold enough to carry on researches into the nature and principles of this new agency. All that you have communicated is, indeed, of high importance, not only as tending to corroborate the observations of other friends to Mesmerism, but as containing some new facts which are fraught with interest. I allude, especially, to a blind person—blind from birth—having actually *read*, when in the mesmeric slumber, and afforded other proofs of vision. On this point I should extremely like to receive some additional particulars. Has the lady in question learnt to read by means of those raised letters, which guide the touch of the blind? Can she, when awake, distinguish colors by the touch, as some blind persons have been known to do? Does she, in the mesmeric state, employ *contact* in order to distinguish objects, which ordinarily fall within the province of vision? I am the more anxious on this question, because it seems to me to involve the whole of mesmerism. If a person *born blind* can give only *one* well attested and accurate proof of vision, then have we indisputably an inner sense, independent of any external mechanism of sensation; then must even Materialists confess that man consists of something more than mere organs that may be felt and dissected.

Hitherto, this power of clairvoyance, as it is called, has been the great stumbling block of the sceptical and the scientific. *I am convinced of it myself*; (I mean of the existence of this power,) but to all my affirmations on the subject the answer is,—"Show us a person *born blind*, who gives proof of vision under Mesmerism."—This seems, now, to be the *experimentum crucis*, on which the favorable reception of Mesmerism by the scientific will mainly depend. It is to no purpose that I have *shown* to many persons a somnambulist reading, apparently by the forehead, while the eyes were covered with bandages, and secured in every possible way. Still, even candid inquirers will ask whether some rays of light may not find their way to the retina—in fact, create vision in the usual manner. Of course, if a person *born blind* shall be found to read even the shortest written word, the question is set at rest for ever. It is clear that, in such a case, the *eyes* take *no* part, whatever, in the apprehension of the visual object. Would it not be desirable, in so important a matter, to have a decisive experiment made upon your very valuable patient, before some scientific men, who would give a statement to the world signed with their names? Perhaps, however, this has been already done, and if so, I must beg pardon for suggesting what perhaps has obviously occurred to yourself. You speak, indeed, of publishing the whole series of experiments on this blind lady, and no doubt the experiments on vision will occupy an important place in these very interesting documents. May I hope to receive such copies of your delightful journal as contain an account of these experiments? In making this request, I must not omit to thank you for the numbers already received, and for the favorable mention of my work which appears in them. I have read the whole series with great interest.

I was not aware that *two* editions of my book had been published in America. Of *one* I had already heard, and it gave me great pleasure to think that my work should become known to an intelligent and thinking people.—Since the publication of the "Facts in Mesmerism," I have had many interesting cases fall under my observation, all tending to confirm the great outlines of the pathology of Mesmerism, and yet exhibiting variations in each particular development. A medical gentleman here at Dresden, the Baron Szapari, has just published a very interesting account of a well attested case of natural sleep-waking, which exhibited all the phenomena of induced Somnambulism. In short, I think that this new series of facts relative to man is becoming daily more studied and comprehended—even in England, where prejudice was at the highest.

I must, again, thank you, both in my own name and in that of Mesmerism in general, for the service you are rendering to the science (for science at length it *will* be,) and beg you to believe me, with feelings of gratitude and esteem,

Dear Sir,
Yours, very faithfully,
Chauncy Hare Townshend.

REV. C. H. TOWNSHEND.

It affords us peculiar pleasure in being able to lay Mr. Townshend's interesting letter before the readers of the Magnet. He is an intelligent clergymen of the Establishment in England, and the author of a work, reviewed by us last fall, entitled, "Facts in Mesmerism, with Reasons for a Dispassionate Inquiry into it;" a work which has, certainly, done more than any other in our language towards recovering this much abused subject from that obloquy into which it had become sunken by previous abuse and misrepresentation. As the inquiries of Mr. Townshend will naturally excite in our readers a desire to see the answers we might give to them, we may briefly state:—

1. That the blind lady referred to, has been taught to read by means of raised letters, though she knows nothing of the shape of our ordinary letters. But I have known her to read scores of names, in the sleepwaking state, without the sense of *touch*, or *sight*, or *hearing*; and she has done this in the presence of scores and hundreds of people, physicians and clergymen.

2. She cannot, and never could, distinguish colors by the sense of touch, either when awake or in the magnetic sleep. But, I have known her to distinguish colors, *merely* by the will of the operator, times without number.

3. She describes things in the magnetic sleep, correctly, without the sense of *hearing* or *touch*. This I have demonstrated many times, and in innumerable ways..—But I should add, perhaps, that her powers of clairvoyence are not equal to those of ordinary sleepwakers who have the organs of natural vision unimpaired. And we should state further, perhaps, that she does not read, or describe what is altogether unknown to the operator, except in cases of sickness, or when she has been requested to describe the anatomy of the human system; and this she has done, when I had put her to sleep, in the presence of medical and scientific gentlemen, and she has done it in her own case with an accuracy which could not be counterfeited, and, indeed, not to be equaled, *in some respects*, by any physician on earth. This may seem strange to those not familiar with this subject, but I speak what I know, and testify what I have seen.—Often when I have put her to sleep, she has given the most *minute* and *accurate* discription of the vital and mental organs, and their various functions, and I know that she gave these descriptions without any direction from me, or any other person, and without even having had any previous knowledge of the things she described. She has described things to me, in the presence of competent witnesses, which she *could not* have known before the moment when her attention was called to them.

But some of my readers will naturally enough ask, "How can these things be?" To which I answer, you will find accounts in different works on Human Physiology, of similar phenomena, which have taken place in cases of natural sleepwakers. We have all heard of persons talking, singing, preaching, praying, reading, running, leaping, and even fighting, in their sleep. Do you ask, *how* can *these* things be?

I have before stated, that a knowledge of the laws of the magnetic forces would explain the phenomena of clairvoyance. These forces pervade creation, and without them the mind cannot have knowledge of anything; but with them, *other things being equal*, the mind may take cognizance of things as distant as the extent of these forces. This I have demonstrated by repeated trials; and other phrenologists and believers in human magnetism will think as I do on this subject, when they shall have satisfied themselves, as I have done, of the existence of the magnetic poles in the human system, and seen the evidence by which we have demonstrated that these forces are the means of *sensation*, *motion*, and *knowledge*. To *destroy* the polarity of the brain is to produce death; and to *derange* the magnetic forces, in that important organ, is to produce insanity. I speak confidently on this matter, because I speak of matters that I know, just as well as I do that the paper on which I am now writing is white, or that the ink which flows from my pen is jet black. I am not more conscious of the one than of the other.

The experiments referred to by Mr. Townshend were published last fall, in the New York Watchman for Nov. 9th and 13th. And, recently, our own experiments have been of a still more interesting and important character, as we have operated on different persons, both when awake, and in the magnetic sleep; and the results have brought us to the conclusions we have before stated in detail to our readers, demonstrating, as it seems to us they do, the number and functions of the different physical and phrenological organs, with their different poles, the manner in which they may be excited, and unfolding the mysteries of man's magnetic nature; and explaining the various mental phenomena which have hitherto so much embarrassed and perplexed the scientific world.

LETTER FROM DR. J. S. DOUGLAS.

HAMILTON, *Mad. Co. N. Y. April* 8, 1842.

Dear Sir:—I know you will excuse my troubling you with an inquiry upon a subject in which you are so deeply interested as that of Living Magnetism. I have practised this science, more or less, for about four years, and have seen, often repeated, the ordinary phenomena mentioned by others, with clairvoyance and somnambulism. In the last half year I have been more particularly interested in its application to disease. For months past, scarce a day has passed in which I have not employed it in the treatment of disease, and the more I employ it, the more I am convinced of its inestimable value.

From my own experience, I take it to be a law, *that Magnetism annihilates susceptibility to pain* in the whole system, or in the particular part to which it is applied. I have performed a great many very painful operations under its influence, and have never yet found an exception to this law. I have repeatedly entirely removed great tumefaction, tenderness, and pain of the bowels from inflamation in a few minutes, as well as swelling of joints from rheumatism; hoarseness and oppression of the chest from cold, the pain of pleurisy, after-pain from accouchement, the most acute tenderness of the spine from spinal inflammation, so as to allow the free application of cups without pain, neuralgic pains, &c. In all local affections, I usually act only, locally. But there is a local action spoken of in your account of one of your cases, which I do not understand. That account is one of exceeding interest, and the inquiries respecting it which I wish specially to make are, if the susceptibility of having an insulated portion of the system so magnetized as to deprive it of its power of motion or action, is common to persons who can be magnetized at all, and more especially that of having insulated portions of the brain thus magnetized? Or, whether it is among the more extraordinary susceptibilities seldom met with? Secondly, what is the method of exerting this insulated influence? Thirdly, My own experience in one respect, does not seem to correspond with that of those whose works I have read. They state that a patient, on awaking from the magnetic state, has ordinarily, no recollection of what has passed during that state. My own patients, though clairvoyant and somnambulic, have, generally, a clear recollection of all that has transpired. In the late learned work of the Rev. Mr. Townshend, it is remarked, that those who are *imperfectly magnetized* remember what passes while in that state. If this is the case, my patients must be generally imperfectly magnetized, though they manifest all the phenomena of the magnetic state.

But is it this ordinary profound state of unconsciousness or forgetfulness into which insulated portions of the brain are put when their functions are suspended? If so, I suppose the operation has nothing peculiar, except in confining it to the part to be acted upon. I have, in a great number of cases, relieved local pains and removed local swellings, but I have never so affected a single limb, or other small portion of the body, as to deprive it of the power of performing its functions, without acting upon the whole system.

By giving me information on these points, you will confer a favor.

Yours, very respectfully,

J. S. DOUGLAS.

Rev. La Roy Sunderland.

ANSWER.

1. Though there is a great difference in the results of the induced Magnetic sleep, in different patients, yet, we have never known one, who could not be paralyzed, in any portion of the system, so as to deprive it of all sensation and the power of motion. We say, *paralyzed*, for we have often rendered the limbs as riggid as though they were perfectly frozen.

2. There are different methods of producing these effects. Much depends on the temperaments of the patient and operator. Sometimes I have produced it, merely by my will, without touching the patient; and, at other times I make passes over the part, in the usual way, for this purpose. To prevent action in any portion of the brain, my usual method is to reverse the passes, over that part.

3. As to what patients remember, no one rule holds good, in all cases. The results depend on their *susceptibility* brought on by repeated magnetizing. I magnetized one recently who, when asleep, did not know *that she was ever in any other state;* she did not know my name, nor her own friends, even when she was put in communication with them! And yet she was the best *clairvoyant* we have ever known.

FROM REV. T. PACKARD, D. D.

SHELBURNE, Mass., *April* 20, 1842.

Dear Sir:—Your paper of the 2d of April fell under my eye, and I read it with interest, particularly what it contained pertaining to Magnetism. I have taken pains to investigate this strange subject, myself, and to apply its agency for the benefit of the sick and suffering. I am gratified to perceive that *one* paper has moral courage enough to speak out the *reality*, the *facts*, the *usefulness*, and the *improving state*, of this novel *science*, (I venture to call it so.)

I am gratified to find that the *Magnet* is in near prospect of publication. Please send me the first number. I think I shall like to subscribe for it; and probably may procure some other subscribers in this vicinity on some terms, suited to encourage and promote what I consider, after some careful examination, an *unpopular* and *important science*. In this work I wish you success, as I doubt not but it will promote knowledge, for practical use, in doing good to our fellow beings.

Yours, with due respect,

THEOPHILUS PACKARD.

LIVING MAGNETISM.

MAGNETIC PHENOMENA.

We have determined on devoting a few columns of each number of this work to such details of facts as will properly come under the head of Magnetic Phenomena. We have an abundance of these facts, but we are not so clear as to the selections we should make from them for publication.

Every person at all familiar with Living Magnetism, knows that no two patients are always affected precisely alike, under the same operator. Nor, indeed, is it always the case, that the same patient is always similarly affected by the same person. And, it is frankly acknowledged, that these facts render it quite difficult, frequently, to deduce any law or principle from the results of the Magnetic sleep.—For, though we believe our experiments have clearly and sufficiently demonstrated, that every living body possesses a Magnetic nature, which is governed by laws of its own, the same as Terrestrial Magnetism, or Electricity, yet it may not be so easy to determine, exactly, what these laws are. A few of them have long been known, it is true, without a knowledge of the *nature* which they governed.

But when it is considered, that the Magnetic forces are innate in matter, and that they are organized in all living bodies—that they are the means by which the mind moves the muscles to action—that health and disease, the growth and decay of the human system, depends on these forces, we must see how immensely important it is, that all the laws by which they are governed should be well understood, especially by those who practice medicine. Nor by them alone, but by every professional man, every parent, every teacher, every one who has a MIND, and who sustains important relations to other minds, whom it is his duty to influence to good, should be familiar with the laws of Living Magnetism.

But how shall these laws become known? Undoubtedly, by comparing facts connected with this subject. There is, there can be no other way. Give us the facts. What is the age, health, and temperament of the patient? Is there any thing peculiar in his Phrenological developments? Is he a natural somniloquent, or somnambulist? How is he affected by the approach of any sharp metallic substance when in the Magnetic steep? Is he affected in the same manner by the contact of metallic substances of any kind? What account does he give of his own or another's disease? What directions for its cure? What means were used for his relief? Were they successful? &c.

We say, then, give us all the *facts* in the case. Let us compare notes. Let us see how one Temperament affects another, and whether the supposed rule operates in all cases. In this way we shall be able to form a correct judgment of the laws which govern Living Magnetism, and to explain the various phenomena which have hitherto so much stumbled and perplexed the scientific inquirers after truth.

CEREBRAL EXCITEMENT.

After discovering that separate portions of the brain could be operated on, and the patient, when asleep, could be made to feel any passion or emotion, appropriate to the organ excited, I soon found that the same results, in a less degree, could be produced in persons of the right temperament, in the waking state, and accordingly I have produced them in a large number of persons at different times.

When the patient is in the Magnetic sleep, I have, sometimes, merely to point my finger at the organ without touching it, and at other times by merely *willing* it, the excitement follows. However, much depends on the *Magnetic relation* between the operator and the patient, the proportions of the Magnetic forces between them, &c.

To give our readers some definite idea of these excitements, we will here add the following *brief* account, as we cannot now spare the room for many details of this kind. The reader will bear in mind, that this patient, as far as I could learn, had no knowledge of the location of the Phrenological organs; and not one word was said, by any one present, by which the *thought* could have been suggested to her mind. We will merely state the name of the organ, and then put down what was said by the patient, immediately on its excitement:—

1. *Individuality.*—"O, I'm thinking of all the individuals I ever knew. O, I have known more persons than ever you did."

2. *Size.*—[Holding up her hands,] "This is so big—this is so small," &c.

3. *Color.*—"O, I want a beautiful pink shawl. O, those beautiful colors."

4. *Eventuality—Ancient.*—"I remember—O, I remember every thing that ever took place in my life."

5. *Number.*—[Holding up her fingers she commenced counting,] "One, two, three, four," &c.

6. *Calculation.*—This excited, she commenced enumerating—"Ten times ten are one hundred," &c.

7. *Tune.*—She commenced singing; and never did I hear singing in which there was so much real musical expression, as I have often witnessed from persons in whom these organs had been excited.

8. *Comparison.*—"These hands are both alike. O, I'll tell you whom you are like," &c.

9. *Causality.*—[The head bent forward.] "*Why* is it that this subject is so much misunderstood? O, I can tell you, 'tis because they do not understand it." And various other expressions in which "*why*" and "because" were used.

10. *Supplication.*—"O, you must pray, I cannot—I want to pray, but I cannot."

11. *Self Esteem.*—[Lifting the head up, and bringing it back in a haughty position.] "I am the greatest person living. *I* am better than any of you. Yes, indeed I am." We never heard the emphasis put upon the pronoun "*I*" so to the very life, as when this organ is excited, in the Magnetic sleep.

12. *Wilfulness.*—"I *will* have my way—O, I don't want to be crossed by any of you—I *will* have it," &c.

13. *Physical Fear.*—"O, I am afraid, I shall fall—help me,—see there, I am afraid —— will come and kill me."

14. *Moral Fear.*—"O, I am afraid to pray to God! He is angry with me," &c.

15. *Gratitude.* "O, I am so thankful—you have been so kind to me—O, I do feel grateful."

16. *Conscientiousness and Acquisitiveness.*—"O, I want some money—is it right to love money? O, no, I know 'tis not right—but what shall I do?"

17. *Veneration and Combativeness.*—[The head was immediately thrown back, and then forward, the hands clasped, as in the act of prayer, and then jerked apart again.] "O, I want to pray,—but I am mad with you all—O, I feel so mad, and yet I want to worship."

18. *Hope, Joy, Veneration, and Faith.*—[The head was slightly bent forward, and the hands clasped, as in devotion.] "O, I am so happy! I do hope to be saved—yes, I believe in Jesus Christ. O, I am perfectly happy—O, I am in heaven," &c.

19. *Imitation and Mirthfulness.*—She immediately commenced mimicking different persons, with an immoderate fit of laughter.

And so of the other organs. In each case, it must be borne in mind, that the excitement was removed from one organ before it was extended to another. And these excitements, we should add, are not natural, but morbid, as in cases of insanity; hence, they should be attempted with the greatest caution, and even then, only by physicians, or those familiar with the nervous system, and for the best of purposes; for we must repeat what we have stated, elsewhere, that we have known great mischief to follow attempts of this kind, when undertaken merely from motives of curiosity.

Magnetism as a Medical Agent.—It is our design to give special attention to this subject, in the succeeding numbers of our work. We have some facts bearing on it, which will be read with deep interest. The object of all who undertake the investigation of this branch of science, should be the mitigation of human suffering, and not merely the gratification of an idle curiosity.

Polarity of the Human System.—Though we are not perfectly satisfied with this term, yet we use it, for the want of a better. We simply mean by it that there is a most remarkable identity in the laws which govern Living and Terrestrial Magnetism.

Our first experiments convinced us that there was some similarity in the poles of Terrestrial and Living Magnetism. And all that we have since heard or witnessed on this subject, has but served to strengthen this impression. We found a patient of ours most singularly affected, in the magnetic sleep, by the approach of a thunder cloud. The chest began to heave, and the limbs were convulsed, considerably, before we had any suspicion as to what the cause could be. We have known other patients who were not affected in any way, when in the magnetic sleep, during a thunder shower.

One of our patients is sensibly affected in this state, by the mere turning of an electrical machine in the room, at a few feet distance. Turning the machine, she says, gives her "shocks," and increases the action of the lungs. By operating on the nerves of sensation, we have frequently produced shocks, similar to those of a galvanic battery, when the fingers would stand out, distended, as if giving off the electrical fluid. At one time we held a large magnetized steel ring over the head of the patient when awake; she immediately became affected, and went into a sound magnetic sleep, and was so much attracted by the ring, that we had to remove it to a distance. Often when asleep, the approach of the ring would draw her in any direction, when she has exclaimed, "That thing *wants* me!"—"it *wants* me;" and we have frequently drawn her out of her chair by it. And, indeed, it generally affects her so much that it has to be removed in a few moments.

The approach of any sharp metallic instrument to the body of this patient, produces increased breathing, and apparent distress. But she is attracted (at times) by any kind of metal, which is not pointed. Once she seized a knife, and grasped it with such force that we had to request assistance in order to get it from her.

Another patient of ours is attracted by the approach of any kind of metal, and the hands follow it invariably. When questioned, she did not seem to know what she was doing. In her waking state she had no knowledge of Terrestrial Magnetism; but on applying the point of a pen knife to the organ of *Causality*, over the left eye, she said it *stuck* to her; but on applying it to the same organ over the right eye, she said it "pushed it off." And precisely the same results followed, when we applied the point of the knife to the supposed corresponding poles in the cerebellum, thus showing, that on the opposite sides of the front and back part of the head, the poles were positive and negative; and by other experiments we think we have demonstrated, that there is a large negative pole in the centre of the brain, where all the magnetic courses, from the different cerebral organs, concentrate; and by a similar process, we have found evidence to satisfy ourself, that every organ, mental and physical, has its pole, or a point, where there is a maximum of the magnetic forces, which extend to corresponding places in the face and neck, and by operating on these points, these organs may be excited to action, and vice versa.

We have, in another article, given an account of a natural magnetic sleeper, in Alton, Illinois, in whom this state was induced by an electrical discharge from a thunder cloud. And the same writer further states, that she has since fallen into this state again during a thunder shower. On the approach of a thunder cloud she becomes agitated, very nervous, and suffers under a peculiar pain in the head. These symptoms all increase in violence until the cloud passes over, when they gradually disappear; or else, if the cloud is low, and is highly charged, she goes to sleep.

Since the account of our Magnetic cerebral experiments were first published, one year ago, we have heard of their having been repeated by persons in different parts of the country; and we hope to receive some details of the results which will be highly gratifying to the readers of the Magnet.

INVOLUNTARY SOMNAMBULISM.

The following is an account of a lady who had been put into the magnetic sleep by an electrical discharge from the clouds. It is letter from the person who first magnetized her to his brother, in this city, whom we have seen, and from conversations with him we have no doubt of the truth of what is here stated

The manner in which this account is given, shows the concern which the writer felt, on finding, like the magician's pupil, that he had waked up a spirit which he does not know how to manage. Accordingly, in another letter from him now before us, he solemnly warns his brother not to meddle with this fearful power, advice which it would be well for all to take heed to, who would not involve themselves or others in mischiefs which they may finally find it difficult, if not impossible to control.

In saying that we believe in the truthfulness of the following account, it must not be understood, that we vouch for the reality of the lady's *clairvoyance* in every respect. For, though we have had repeated demonstrations of this power, in cases of our own, and though we believe it to be explicable according to the laws of the magnetic forces, yet we know, further, that great allowances should be made, often, for different patients. We never depend upon these accounts which are given of distant things, without we have evidence of their truth besides that usually furnished in the statements of the patient. We have known cases, where persons in the magnetic sleep had been requested to describe things at a distance, and the descriptions did not agree, at all, with the facts in the case.

ALTON, *Ill.*, Feb. 28, 1842.

Yours of the 11th inst. is received, which I will hasten to answer. First, as to Animal Magnetism. You were right in supposing the communication in the Louisville Journal was from me. There is nothing in that letter but what was clearly within the truth. The whole truth would have developed other facts still more "passing strange." The fact is, I am now at G.'s, where I am under the necessity of awaking Miss E., the subject of my experiments, from what is called the Mesmeric state every morning, and often several times during the day. She falls into it involuntarily, and at times in opposition to my will. If allowed to remain long in that state, she becomes alarmingly nervous and convulsed. In what, or how, or when it will end, time only can determine. We do, however, think it is gradually wearing off, and that her inclination to relapse into the sleep is not as irresistible as it was. Most of her sleep for the last six weeks has been of this character. Thus much as to her present situation; and now, a few lines on Animal Magnetism, its causes and effects. Of course, as soon as we discovered the tendency to fall involuntarily into this strange state, all further magnetizing processes were stopped, and this sleep which she now falls into is only of a partially magnetic character, devoid of most of its strange features, excepting the facts that I alone can wake her, and that she will converse freely and rationally with me, but cannot see or hear anything or anybody else. I agree with you, that there is something connected with it not at all understood or to be accounted for by any known course of reasoning, and further, I doubt whether man can ever satisfactorily establish any philosophical solution of its causes—how mind can thus act on mind, or mind on distinct matter; for when in this sleep, I can by my will cause her arm or hand to rise to a horizontal or any other position, and then remain stiff and inflexible as the limb of a corpse. This appears some like the action of the mind on matter. The first time I magnetized Miss E. I could not get her to speak—the second barely to answer yes or no—the third time she would talk a little, and so on till perhaps the tenth time, when she would converse freely, and began to exhibit her marvelous clairvoyant powers. From this time until we were alarmed by her falling into this state herself, you may well suppose we were deeply interested. I say *we*, for it was confined to the knowledge of cousin G.'s family, and one neighbor. I will now state a few facts, which we all think were evidenced beyond the possibility of a doubt.

Nobody but myself is capable of waking her. She would talk with no one but me, except I had first willed that she should, and also placed the third person in contact with her, as placing their hands together. She could hear nothing but my voice or a noise made by me. I have seen G. fire a gun within a foot of her head without her showing any signs of hearing it. Her eyes closed, she will tell when I eat and drink, will tell accurately when I left the room, and when I returned. You may bear in mind that none of us had seen anything of the kind, and were unprepared for most of the phenomena.

One evening while she was in this sleep, some apples, raisins, and walnuts were passed round. I commenced eating an apple, when she remarked, "These are good apples." I then took up some raisins, and asked her what I was eating. She told me correctly. G. handed me some vinegar, which I tasted, when she exclaimed, "What do you want of this sour stuff?" G. next handed me some sugar, and so on, until we were satisfied she was conscious of whatever I was eating—she tasted whatever I tasted. Her position was such that she could not have seen what I was eating if her eyes had been open. We next discovered that, although herself insensible to corporeal pain, she felt sensibly any pain inflicted on me. Prick my hand, for instance, and she would jerk her's back, and perhaps rub it on the spot where mine was pricked. Pull my hair, and she would say, "Who is pulling my hair?" I next discovered that she would often speak of subjects on which I was thinking, and finally, one evening, when we were testing her strange powers, I put a piece of apple in my mouth and remarked, "These are good raisins that I am eating." She replied, "You need not attempt to deceive me—I know your motives and thoughts—yes, I can see your every thought." I then directed a third person to write on paper several questions, on what subjects they chose, such, however, as she would naturally be capable of answering. I then took the paper, and sitting by her side, put each question to her mentally; that is, without speaking or making any noise whatever. As I read the questions to myself, she would speak out and answer them, one after the other. Mind, I did not speak a word from the time of receiving the paper until she had answered the last question. By such and other experiments, we were convinced that she was truly aware of whatever was passing in my mind. One evening when I had placed her in this state, I was laboring under a slight cold, attended with a cough. She was asked what would cure my cough. Her reply was, "You must be careful, or your cold will be settled on your lungs, for I see they are inflamed." On questioning her farther, I was fully convinced that she was conscious of seeing and knowing my, as well as her own, internal organization.

Now I come to what to many appears the most extraordinary phenomenon, I mean clairvoyance, or the power of perceiving what is occurring at a distance.

In this faculty, or in the exercise of it, she appeared to improve at each sitting, the same as a person will excel in anything by practice; and our experiments in clairvoyance had not advanced much at the time when she commenced falling into this sleep independently. Enough, however, was elicited to prove that she could tell what had transpired in an adjoining room, and at a distance of two miles; and if at the distance of two miles, why not at a much greater distance? Those trials which afforded the most positive evidence of this power, were like the following:—Cousin G. or L. would go into another room and disarrange the furniture, upset the table, or place chairs on the bed, and make other changes from the usual position of affairs. On being asked to look into the room, she would exclaim, "What are those chairs on the bed for?" "Why are things in such confusion?"

On being questioned further, she would describe the exact situation of things. Again I took her to my room, at the hotel down town, about two miles, and she described its contents, even a painting that is hanging on the wall. It was a room in which she had never been. Many trials of this kind have satisfied us that she in some way became conscious of things of which the natural perceptive faculties or the senses could not have informed her. In repeated instances she has informed me what was going on at father's and Captain W.'s; would tell it in a manner as natural as if she had been there. We had not, however, entered into any arrangement with any one, then, to ascertain whether she told truly, therefore have no positive evidence.

On Chrismas eve, however, I directed her to go to W.'s; she immediately began as follows: "Almira is sick." On being asked how she seemed, and whether very sick, she replied, "she had a cold and some fever, but is better, and is not as sick as I at first thought." On being asked what they were doing, she says, "Father W. is sitting before the fire, with his shoes off, warming his feet; mother W. is also sitting there, holding the babe, and Eliza is up stairs dressing or undressing." This must have been about nine o'clock in the evening then. I have never asked any questions to learn the truth or falsehood of all this; but I received a letter on the 7th or 8th of January, from mother, dated December 24th, (day before Christmas,) in which she says, "Almira has had a slight attack of fever, attended with the rash, but is now much better." On being asked whether she saw these things, she would say, "it does not seem as if I saw them with my eyes, but I know them. How it is that I know them, I cannot tell."

Thus, you have briefly the result of my experience in Animal Magnetism. I am convinced that this case is one of the most sensitive, one of the most perfect, in the powers and faculties developed in this state, that has ever been known. I am almost inclined to believe, if it had not assumed its present or any other alarming appearance, I should soon have been able to have opened a daily correspondence with you.

If I had nothing else that demanded my attention, I should like to pursue the investigation farther. What a field it opens for contemplation on the qualities and nature of mind and matter! And I wonder it has not been brought into view more, in aid of some of the theories relative to mind and matter, especially Idealism. Now you can make what you can from the facts that I have given you. That they are facts, and no humbug, you can rely upon it. As for myself it is completely enveloped in "shadows, clouds and darkness," and even G. is for once bewildered.

PHRENO-MAGNETISM.

The experiments described in the preceding pages have been successfully repeated, as we learn, in different parts of the country, as in England, also. The following account is from the Washington Banner, edited by Mr. W. H. Burleigh, an intelligent young man, well known for his poetical talents:—

One of the most interesting discoveries developed by this science, is the fact that distinct portions of the brain may be separately excited, so as to produce distinct manifestations of mind, almost at the will of the operator. This, it seems to us, furnishes the most irresistible proof ever yet offered of the truth of Phrenology.

We first saw the fact noticed in the New York Watchman, that the several organs could be thus separately magnetized—but it had never occurred to us to repeat the experiment, until a lucky accident convinced us that it could be done. We had been making several passes with the finger only over the organ of Tune, (without even knowing its position,) when we discovered a glow of pleasure light up the face of the patient, and she instantly commenced running her fingers along her lap, as if over the keys of a piano. The experiments of the editor of the Watchman were suggested to our mind, and upon inquiring of a phrenological friend, we found, as we suspected, that the organs of Tune and Time had both been magnetized. The success of this accidental experiment induced us to try others, with what results the reader shall be informed.

We have tried these experiments upon several individuals, neither of whom knew any thing of Phrenology. Generally, we magnetize the organ without contact, though sometimes we lay our finger slightly on it—the results produced, in either case, are, of course, the same. After having magnetized a particular organ, our first question to the patient generally is—"What are you thinking of?"—for a question put in this form could not suggest the desired answer, since it gives to the patient the widest possible scope for his imagination, if the answer were to be arrived at by a guess. With one patient, the answers were so prompt that it was unnecessary (except in a single instance) to ask the question at all.

For instance, we passed our finger over Mirthfulness—and although he had previously complained of sadness, (the complaint, in fact, induced us to magnetize that particular organ,) he immediately burst into laughter, which seemed almost irrepressible, and commenced making humorous remarks, which produced corresponding mirthfulness in others. He was, in short, full of what may be appropriately termed *fun*. Passing our finger over the organ of Tune, he instantly ceased laughing, and with a rapt expression of countenance, as if listening to some heavenly harmony, exclaimed—"Music! music!

> 'Oh, why should feeling ever speak,
> When thou canst breathe her soul so well!'"

We magnetized the organ of color, and he threw up his hand with delight, as if gazing upon some beautiful vision, and said—"Oh, I see before me the most gorgeous combinations of colors that imagination ever conceived—if I were only a painter, what a splendid picture I could give you." We magnetized form, and he cried out that the beautiful colors which had floated before his vision like a radiant mist, were taking to themselves *shapes—forms*—some square, some circular, etc. We passed our finger over the organ of Language, hoping to hear

an extempore oration, but he disappointed us by immediately commencing the declination of a Greek noun.

Passing from the intellectual and perceptive organs, we magnetized Alimentiveness, and waited for an answer, expecting that, as usual, it would be spontaneous. In this, however, we were disappointed, and after making a few additional passes, we asked him if he was conscious of any peculiar emotion of mind. "Yes!" was the prompt reply—"I am conscious of a peculiar feeling, but I can't analyze it. There seems nothing intellectual about it—in fact, it is purely physical—something connected with taste." Our next question was a suggestive one, and he immediately began to discuss good eating with the enthusiasm of an epicure, but at the same time exhibited so conscientious a regard for temperance in all things, as to give assurance that his appetites were under the control of principle.

EXTRAORDINARY PHENOMENA.

In another article we have referred to the *identity* of Galvanism, Magnetism, Electricity, and the effects we had produced on somnipathists with the common Magnet. Since that article was in type, a number of other similar facts have come to our knowledge, of a most extraordinary character.

On the 16th of April last, we had put a patient to sleep, and produced a number of Phrenological phenomena by operating on the brain, in the presence of a number of physicians and others, who had requested the privilege of seeing our experiments performed. During the sitting, one of the gentlemen present applied the blade of his knife, which had been magnetized some five years ago, to her hand, and she was so much affected by it, that it had to be removed to a distance. She manifested the most intense earnestness to have it, saying, "*it wants me—it wants me*," &c. A large magnetized steel ring was held over her head, without her knowledge, and it drew her in whatever direction it was moved, and affected her so much, that it had to be removed. She begged, and entreated that she "might have it."

After waking her up, I again held the ring over her head, without her knowledge, and in a few minutes she dropt into a state resembling sleep, and yet not exactly sleep, but in which she, as before, begged for "that thing;" for she had not seen the ring, and did not know what it was that affected her in this way. But on removing the ring, I found it next to impossible to wake her up, or to control her at all The entire system seemed to be paralyzed, the breathing was much increased, and difficult; and she continued in spasms for about twenty minutes, when she was relieved, and came out "in a shudder," like the lad described in the article below.

We have other facts of this kind which we shall describe in our succeeding numbers.

But, the phenomena described in the subjoined account are most extraordinary, and exceedingly interesting. We know the writer, and have had a full and minute description of this case from his own lips. About the facts, there can be no doubt. And, here we have a singular case of *clairvoyance*, unlike any of which we ever heard before. Here is an instance of a person so much affected with the natural magnet, in the waking state, that he sees distant things in the dark. And, he not only seems to have had a clear perception of the place, where the magnet had been hid; but his father stated, that when he took his son into the yard, from which there was a burying ground some rods distant, he said, "O, I don't want to stay here—I see every thing—I see the bones in those graves! O, I don't want to stay here!" declaring that he saw all the bodies in those graves.

We repeat it, there can be no doubt as to the truth of the following account; the writer is an intelligent minister of the gospel, well and extensively known.

Rev. and Dear Sir:—Agreeably to your request, I herewith transmit the facts respecting the influence of the magnet in producing the magnetic sleep in the case of my little son. His age is 15. I first magnetized him about the 20th of February, 1842. For some days he was put to sleep each day, for about half or three quarters of an hour. After that, each alternate day, for about three or four weeks.

About ten days since, he was playing with smaall horse-shoe magnet, capable of sustaining about 12 or 14 ounces. In a short time, I perceived that he was asleep, and exhibiting the usual symptoms of the magnetic state. I attempted to arouse him, and he immediately opened his eyes, but said, "I am in the magnetic state, I can see every thing just as when I am magnetized." I attempted by the usual passes to remove it, but found I could not. He said, "It is the magnet that has produced this state, and you cannot take it off." I then took the magnet in my hand, and tried the effect of making the several passes with that; but it only *increased* the difficulty. I then proposed to send the magnet away, to a distant place. But he objected, with great earnestness and even with tears. I then persuaded him to go with me into another room, 20 or 30 feet distant from the magnet; and after staying there a short time, he consented to have the magnet removed.

I again tried by the usual passes to remove the influence from him, but could not. He remarked, that "nothing I could do would remove it, but that it would pass off, of itself, in about an hour, and that he should *come out of it with a shudder*." During all this time, *his eyes were open*. He could hear and converse with me and with persons *who were very near to him*, after they had been near him for a few minutes, but with no others.

He was playful and apparently happy. In about an hour he started suddenly, and with a violent spasmodic shudder, and appeared restored to his natural state. Of nothing that had passed had he any recollection, and the only difference that I could discover between this and the state in which he had usually been when magnetized, was, that in *this*, *his eyes were open*—he had none of the usual attachment to me, all seemed transferred to the magnet, and I had no power to remove it.

The magnet had been removed to a distant chamber. But he expressed a strong desire to go to it. I then took the magnet away, *unknown to him*, and, passing out doors, carried it *by a circuitous route*, and placed it in a pile of lumber distant 70 or 80 feet. It was past 9 o'clock at night, and very dark, and he had no means of knowing, by the ordinary senses, that it had been removed. He said, however, that it had been removed, and went on to tell me which way he would take to find it, and said he would not go *directly* to it, but would find it by a circuitous route—that he would go out round the house, in about the same course that I had taken in carrying the magnet away! But he said the magnet was wrapped up in a paper, and put in a pile of lumber, which was the fact.

I then went and removed it to a still greater distance, where I left it till the next morning. He said, that he had a *strong impression on his mind*, that it had been removed to the more distant place as I have described it, and that, from that time he lost all interest in it. This was more than an hour from the time that he came out of the magnetic state with a shudder, as above described. Since then, he has manifested no desire for the magnet, but when it was afterwards brought near him, even within several feet, he said, after a few minutes, that he felt the same influence coming over him, and immediately caused it to be removed.

I might add, that the application of living magnetism in his case, was in a course of medical treatment for a spinal disease, and was generally applied under the di-

rection of experienced physicians, and apparently with very happy results.

Respectfully yours,

Philadelphia, April 17, 1842.

To Obtain Different Flowers from the same Stem.—Split a small twig of elder bush lengthways, and having scooped out the pith, fill each of the compartments with seeds of flowers, of different sorts, but which blossom about the same time; surround them with mould; and then, tying together the two halves of the twig, plant the whole in a pot filled with earth properly prepared. The stems of the different flowers will then be so incorporated as to exhibit to the eye only one stem throwing out branches covered with flowers analagous to the seed which produced them.

Potato Black.—We are informed by an old painter, that potatoes being baked moderately at first, in a close vessel from which air is excluded, and exposed to an increased heat until they are completely charred through, they may then be ground in oil, and thus produce a beautiful black, superior in many respects to any other in use.—*American Mechanic.*

PHRENOLOGY.

OBJECTIONS ANSWERED.

We have never believed it the better way for exhibiting the claims of Phrenology to excite the organ of Combativeness in its defence. When this organ is exercised too much in its favor, it excites a similar disposition against it. And, when these organs take the lead in controversy, it rarely follows that either party is convinced of error.

We know the nature of the human mind too well to believe that much good is often done by controversy, especially to those directly engaged in it. Hence it is with some reluctance that we comply with a request that we should notice an article in a late number of the Western New Yorker against Phrenology. Not, indeed, that there is any thing new, or at all formidable in that article, but because we do not believe this to be the best way for maintaining the claims of this, or any other science. Let Phrenology be perfectly understood, and there will be but few who will reject its claims. And hence it is, that most of the objections usually urged against it are founded in ignorance or misapprehension. The same reasons were once urged against other branches of science. But now the principles of the Newtonian theory are well understood, we find no one to dispute or condemn.

Though the article above referred to, contains nothing new; though it brings forward no objection which has not been often met and answered before, yet, it may not be amiss to show the writer and others who think with him, that there are views which may be consistently taken of this subject which fully obviate his objections. Let us look at them:—

"Phrenologists profess to be able to distinguish *criminals* from honest men, and the *kinds* of crime even, which they have committed."

This is not exactly correct. What we profess to be able to do, is to describe the talents and *mental characteristics* of men. Phrenology will discriminate between the dispositions of different persons, and tell you which of two individuals would be the most likely to commit certain crimes under certain circumstances.

"There would seem to be a fixed and fatal necessity in the actions of man, implanted in his very organization, and which it would be utterly impossible for him to control."

Phrenology demonstrates the reverse of this assumption. It shows that all who have intellect enough to know right from wrong, have a faculty which chooses what they will do. Phrenology, more than any other science, proves man's freedom of will. It is an attribute of his nature to determine which of his organs he will gratify, and how, and when it shall be done. All the organs were designed to be *exercised in a proper manner*, but none of them to be abused. Sin and wrong doing consists in the abuse of the mental or physical organs. We do not admit that man is so organized that he *cannot* obey. The freedom of the human mind to obey or disobey, is a fundamental principle of Phrenology. It does not follow, that *because* one has a large development of *Acquisitiveness*, for instance, that he must, or will be *governed* by this organ, any more than it follows, that when one has large *Veneration*, he will, or must do nothing but *worship* God. And, indeed, this writer seems to reason precisely in the same way, when he speaks of the influence exerted by education and circumstances over persons. But how circumstances influence one to vice or virtue, it would be impossible for him to tell, except upon Phrenological principles. For, if there be no organs to be *excited*, of course, neither circumstances nor education could have any influence in forming the characters of men.

"Consequently the drunkard must remain a drunkard, the thief must remain a thief, and the infidel an infidel; for there is no chance of altering their *character* unless their *bumps* can be altered *first*, a circumstance wholly impossible."

The same objection, repeated in another form; and, in fact, this is the sum and substance of all that is said against Phrenology. But it amounts to nothing when compared with the true science of the mind. Man has no organ of *Drunkenness*. He has no organ of *Theft*, or of *Lying*, or *Murder*. These crimes are committed by the abuse of organs, which it is lawful and right to excercise in a proper manner. Man has no organ of *Infidelity;* but he becomes an infidel by refusing to exercise the organ designed for faith in God, and a future state.

"Phrenology is opposed to Christianity in another particular; for it teaches that all the propensities of man proceed from the head, while Christianity ascribes many of them to the heart."

Well, this is funny. And, can this writer tell what the heart is? Wherein does it differ from the *mind*, or that conscious, self-determining *principle*, in men, which loves or hates? When used in the scriptures it must either signify the mind or not. If it does not, then man has propensities which are not located in his mind! But if it does signify the mind, then the language of scripture not only agrees with Phrenology, but it evidently is based on its truth. Instance the parable of the talents. One had five, another three, another two, and another one. Anti-Phrenologists can never give a consistent explanation of this parable. They tell us that all have talents (minds) equally alike, and the only difference among men is made by circumstances and education!

The parable of the sower, also, is based upon the truth of Phrenology. The ground [heart or mind] on which the seed fell, was not all alike; it was not equal in the degrees of its susceptibility. This truth is so obvious that facts need not be narrated to sustain our position. Every one must have seen what a difference there is in the *minds* of men to whom the gospel is preached. They all need the gospel—the "good seed;" but when it is sown, they do not all receive it alike; nor do those who do receive it, all bring forth fruit in an equal degree. And the difference alluded to in the parable, is that which exists in the Phrenological developments of different persons.

It would be curious enough to see how those account for this difference, who deny the truth of Phrenology.

EXTRAORDINARY CHARACTERS.

We have denominated those persons prodigies, who have been quite remarkable for any one peculiar talent. But, most anti-phrenologists have generally failed to notice how clearly the cerebral developments of these persons have demonstrated the truth of Phrenology; or, if they have noticed this fact, we fear they have seldom manifested a corresponding willingness to admit the sequences which might be justly deduced from it.

As it will interest our readers, and be of some service to science withal, we purpose devoting a little space in our work, to accounts of remarkable characters, who have attracted more or less attention in the world, by their talents or eccentricities; and to show, how exactly their conduct and characters correspond with the principles of Phrenology, and Living Magnetism.

We will begin with a well known, but highly eccentric character, who died in this city a few months since,

Mc Donald Clark.

We are not aware, that there is any drawing or bust of his head, in existence. However, having been well acquainted with the "Mad Poet," as he was called, and having examined his head a number of times, we are prepared to describe his peculiar phrenological developments, which rendered him so notorious for the last few years of his life. His head was small, and most wretchedly balanced, as his *Ideality*, and *Compassion*, *Wit* and *Sadness* were remarkably large. Indeed, his head was so much out of the ordinary shape, by the protuberance of *Ideality*, especially, that any stranger could but notice it, at once, on seeing him. And, it might be truly said of him, that he talked and wrote, yea, he felt and *thought* in poetry. But, being deficient in *Causality*, and *Firmness*, some of his writings were scarcely fit to be seen, while at times, it must be confessed, his strains were poetic and exceedingly beautiful. Here is a specimen:—

> "Now twilight lets her curtain down,
> And pins it with a star."

That is Clark, himself.

The following, is, perhaps, the best piece he ever wrote:—

"Belle of our Beauties—brightest of the flock,
My eyes are shut—but, since half one o'clock,
My heart's been beating, like the—the—no matter,
Donald, dear, you shouldn't have—looked at her.

O! who can help it—heigho—dont she seem
Lovelier than doubloons, or a Poet's dreams.
Isn't she young, and tall, and plump, and—rich,
And does n't she whiter heads, than mine, bewitch?

Toast of even Traders—Saratoga swears,
The nights of the yard stick followed her in pairs,
Grew thin, and pale, and could n't touch their meals;
Then only fancy how a poet feels.

Her form's elastic as a willow tree,
Glorious in motion, when the winds are free;
She moves with timid dignity and grace,
While thought is thrilling thro' her sweet young face.

Her head is small, and balanced, to a turn,
Her white cheek flushing, with the fires that burn
Deep in a heart, that dreams of—who—who—who,
Donald, you dunce—you need n't dream—'tis you.

O no—she's much too beautiful, and gay,
For one who's poor, and creditless, and grey,
Whose note has not the chemical, true stamp,
And who's been christened, long ago, a scamp.

Where we left off—, I said her head was small,
Her forehead full, firm, as an ivory wall,
Her hair like cypress plumes, in moonlight's ray,
Her lips were only made—to kiss and pray.

O the deep magic of her mild kind eye,
Bright as the daylight, bluer than the sky,
When Autumn warms, and mellows down its tone,
And the moon, without a cloud, in heaven alone.

Calm as the brightness that we had, last night,
That made the soul grow giddy, with delight,
And when it looks yon side away—heigh-hi-ho,
I wish I dare tell—Daddy—what I know.

But ah—'tis silly—silly sure for one,
Whose years, in this world, nearly all, are run,
Whose face is fading fast—and fortune's thin,
To doat on her—rich dandies cannot win.

I know 'tis folly—but I love to think,
And have my heart in swooning rapture sink,
And wonder who will lay his head to hers—
A Buck of Boston, some say, she prefers.

Amen—my sweethearts—*all* have turn'd their backs,
Wont risk a fortune so forlorn as Mac's,
God help him—his lone pillow's cold, and wet;
When will Experience teach him to forget?

His loves are cluster'd like the solemn lights,
That blaze thro' the blue dusk of our Winter nights,
That, like a rich, broad banner, is unroll'd,
As bright, and cheering, but alas, as cold.

Remember thee!—O how can I forget
That form, where Grace her glowing seal has set?
While Woman's name omnipotent shall be,
And man shall worship—I'll remember thee."

Never, perhaps, was there a greater combination of weakness, wit, misery, and poetry, in the same head. He once informed us, that he never wrote or read poetry, without weeping, and on our repeating a somewhat pathetic verse to him, he wept like a child.

His sarcasm is well illustrated by the following anecdote, related in a recent number of the Commercial Advertiser:—

"It was, we believe, about the year 1829, that in the course of one of the late Mr. John Lang's short controversies with the Commercial, he rather wantonly introduced the name of McDonald Clark, to whose brains he applied the term "ZIG-ZAG." Clark's feelings were really wounded by the attack, and he came to beg permission to reply. We tried to dissuade him from his purpose—averse as we were to controversy, and apprehending that we could not afford the space that the poet would require. He was so urgent, however, and his manner so imploring, that we yielded, upon condition that he would write but four lines. Delighted with this, he sat down at our desk, and produced the following *impromptu*:

"I can tell Johnny Lang, in the way of a laugh,
Since he's dragged my name into his pen-and-ink brawl,
That most people think it is better by half
To have brains that are "ZIG-ZAG"—than *no brains at all!*"

The hit was capital; and we believe Mr. Lang never again assailed 'the mad poet.'"

Zerah Colburn.

Every body has heard of the astonishing Mathematica powers of Zerah Colburn. The widest space in his head was between the organs of *Calculation!* At least, this was the case, while he was astonishing Europe with his solutions of Mathematical problems, as we have seen a drawing of his head, taken at that time. In after life, however, his oth-

er organs were brought into exercise, till he, finally, became a minister of the gospel, and ceased to excel in the exercise of his peculiar gift.

Our discoveries have demonstrated, we think, the *duality* of the pairs of organs usually called calculation. The first pair, outside the corners of the eyes, are appropriate, merely, to counting numbers; the next behind them to *Calculating*, and the higher branches of mathematics. We examined the head of a gentleman, a few weeks since, (a stranger to us) in whom these last named organs were unusually large; between them from side to side, was nearly the widest part of his head. His friends present, pronounced him one of the most excellent mathematicians in the country.

It is said, that among the boys now employed for the different purposes of calculation on the ordnance survey of Ireland, there is at present one named Alexander Gwin, only eight years old, and a native of Derry, whose abilities at his early age are truly surprising. He has got by rote the fractional logarithms from one to 1000, which he will repeat in regular rotation, or otherwise, as the interrogator may put the questions. It is certainly astonishing to think so tender a mind can retain, with such tenacity and correctness, seven figures of an answer, (according to their different variations) for 1000 numbers. His rapidity and correctness in the various calculations of trigonometrical distances, triangles, &c are amazing.

He can in less than a minute make a return in acres, roods perches, &c., of any quantity of land, by giving him the surveyor's chained distances, while the greatest arithmetician, with all his knowledge, will certainly take nearly an hour to do the same, and not be certain of truth in the end.

It is very desirable, that an exact admeasurement should be taken of the head of this extraordinary lad, as we are confident it would be in perfect keeping with phrenology.

It will be found, we doubt not, when the laws of Living Magnetism shall have become more perfectly understood, that, when any organ in the head is perfectly developed, its exercises will be *perfect*, that is, the knowledge appropriate to that portion of the brain, will be intuitive, as in cases of somnipathy, where the patient seems to have a perfect knowledge of things without any mental effort.

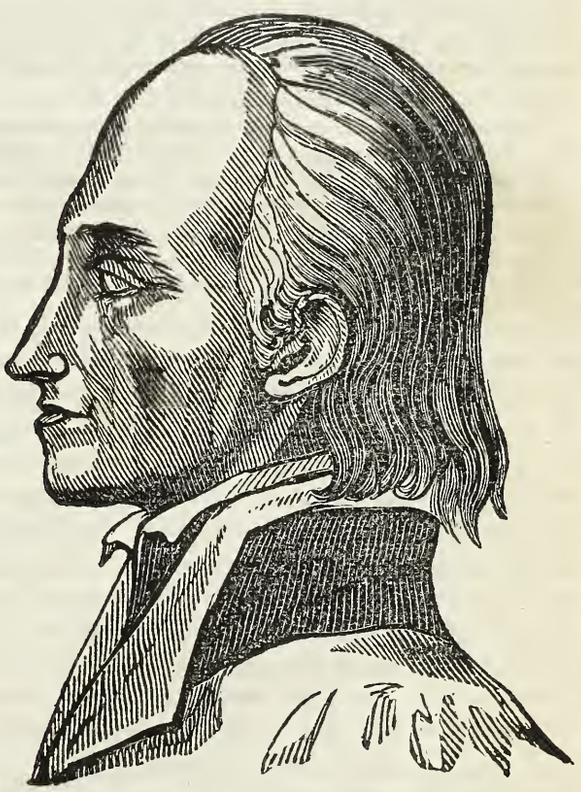
FRANKLIN.

We have referred to Franklin's organs of Causality, in another article. The above cut gives a tolerably correct idea of them; and it is worthy of notice, that all the portraits of this great philosopher, represent his head as bent slightly forward, thus giving the natural language of these organs, which, in his head, were exceedingly large; as were the organs of Comparison also, and with his other developments, giving him great powers of analysis, and critical acumen It has been well observed, that Franklin was a philosopher, without being conscious of it, but it was these organs which gave him those powers of discovery which have associated his name with that of Newton and Copernicus.

HERSCHEL.

The above cut is said to be from a correct drawing of this most extraordinary man. No one can look at it without being struck with the enormous size of that portion of the brain where we have located the two large consecutive poles of the brain, (36). *Order* (30), Locality, and the other perceptive organs, were remarkably developed in his head, and they gave him those astonishing powers of observation which have immortalized his name. Compare such a head with a person of known inferiority, and no one can resist the conviction which is at once forced upon the mind.

OBERLIN.



Here you see a most remarkable development in the anterior and coronal regions of the head; and the fame of his benevolence has extended as far as the Christian name is known. It is said, that he found the inhabitants of his parish, isolated in five different villages, poor, ignorant, agitated by heinous passions, and without the most necessary

means of comfortable existence. But by laboring unremittingly, he, by degrees, succeeded in changing their wretched condition. He taught them to cultivate potatoes, flax, and such vegetables as succeeded best in light and sandy soils. He laid out a nursery, in order to supply the peasantry with fruit trees of various kinds, and shewed them the advantage they would reap by attending to their cultivation. He gave instructions to the children himself, teaching the younger to read, write and calculate; while he lectured to the more advanced in age, upon the cultivation of fruit-trees, the principles of agriculture, and the noxious and useful qualities of the plants which the country produced. He particularly accustomed them to order and cleanliness.

The good pastor, with his parishioners at his back, actually worked at the formation of convenient ways from one village to another, and of a good and ready communication with the great road leading to Strasburg. To this city he sent children to become artisans, such as tailors, shoemakers, smiths, and carpenters, a female to learn midwifery, and a promising youth to study medicine and surgery. He himself had some knowledge of the healing art, used the lancet in cases of necessity, and preserved the most necessary remedies in his house, which he distributed as he thought they were required. He devoted his talents, time, labors, and whole life to the welfare of his flock. He persuaded a benevolent family, Legrand, to favor his philanthropic views, and to transfer their manufactory of ribands from Basle to his parish, and to furnish employment to the people.

Besides his vast care of all worldly concerns, he paid the greatest attention to moral and religious instruction, which he enforced in the most effectual manner by deed as well as words. He ended a law-suit in which the parish had been involved many years, and he brought good will and mutual love to dwell with his flock, instead of discord.

It is delightful to contemplate such a character; and the name of *Oberlin* has been appropriated by benevolent Institutions, as one of the best mementos of that divine philanthropy which was so wonderfully exhibited in his pious life.

LITERARY NOTICES.

The Astro-Magnetic Almanac for 1843; In which all the motions of the earth are demonstrated, in accordance with the theory of the ancient eastern nations. By H. H. Sherwood, M. D. Calendar by David Young, Philom. New York, 8 vo. pp. 72, illustrated by numerous engravings. Price 12 1-2 cents.

Our readers are not to suppose, from the title of the Almanac prefixed to this article, that it is of a character with the catchpenny pamphlets, which, under the same name, are yearly hawked about the streets. Even they are so far useful, as they contain an astronomical calendar, which is often indispensable, and always convenient to the navigator, the farmer, and others. But then, their adjunct matter is, with few exceptions, of a trashy, puerile character. Not so with the present work. It will bear favorable comparison with the nautical and American Almanacs, nay, it is so far superior to both of them, as it embodies a condensed system of science, illustrating, in a few prominent outlines, the relations between Astronomy and Magnetism. The author, Dr. Sherwood, of this city, has, for many years, been engaged in the investigation of magnetism, and although certain *poachers* upon his labors have made attempts to anticipate the publication of a work which he has long been preparing for the press, and of which this treatise forms but a part, we venture to prophesy, that, when the result of his labors shall have been laid before the public, his name will assume a high station in the scientific world. His original and ingenious theory, as profound, as we believe it to be correct, of the exclusive magnetic power of the Sun over the planets, the earth, of course, included; his rejection of the disturbing forces of the planets, his fixation of the magnetic poles and magnetic meridians, and the discovery of their rates of motion in the arctic and antartic circles, giving to the earth, (if we may so term it) a *tertiary* motion, which gives rise to the precession of the equinoxes, and the progressive obliquities of the angle of the ecliptic with the equator between a right angle and no angle at all, involving millionary periods of years; his ascertaining the longitude by the variation of the needle, and the variation of the needle by the latitude and the longitude, and, specially, the view taken by him of the cause of the rise and fall of water in different portions of the globe, which he shows to be dependent on the magnetic poles; these, we say, are but a part of the subjects touched on in this interesting manual. We scarcely need recommend such a work. Its utility must be apparent to every scientific student. It is, also, calculated to render useful science popular, by making it easily understood by the meanest capacity. We have no doubt that it will have a wide and general circulation. P.

Uncle Sam's Recommendation of Phrenology,—To His Millions of Friends in the United States. In a Series of not very dull Letters. New York: Harper and Brothers, 82 Cliff-street. 12mo., pp. 304.

To merely say, that we are pleased with this work, would not, certainly, be doing justice to its merits. For, although the author does not, by any means, say every thing which might be adduced in favor of Phrenology, yet, he has presented some of its most interesting features in a style which is neither dull nor uninteresting; a style which, we venture to predict, will take, with the generality of readers, better than most works heretofore published on this subject. We commend this book to the notice of our countrymen; for, however much they may differ in their views of many things, heretofore done by "Uncle Sam," we must all yield to him the credit of having done a special service to science, in the publication of these letters.

To give our readers some idea of his manner of writing, we will here quote a few of the titles to his letters, and which are designed to give an idea of the organs described. For instance, he begins with, a "Salutatory," and then comes the "Way and Manner," "The Why and Wherefore" of his writing, "The Whence and What of Phrenology," "How Phrenology gets along here," "Beginning to Begin," "Paring and the Half a Story," "Parentage and the other Half of that Story," "Home," "Surrounding Affections," &c. &c.

Popular Phrenology. Exhibiting the Exact Phrenological Admeasurements of above fifty distinguished and extraordinary personages of both sexes, with skulls of the various nations of the world. Embellished with fifty engravings. New York, 296 Broadway. By F. Coombs.

This work possesses quite an attractive appearance, and we doubt not, it has many excellencies which render it worthy of patronage. When we find the necessary time we shall give some account of its contents.

THE

MAGNET.

VOL. I. NEW YORK, JULY, 1842. NO. 2.

MAGNETISM.

SLEEP-WAKING.

The term sleep-waking, or somno-vigilium, has been used to signify a partial sleep, of a peculiar kind, in which persons have a sense of hearing and seeing, without the use of the common organs of these exercises. The term somnambulism is sometimes applied to such cases, though, indeed, the patient does not walk at all.

In these cases, some of the intellectual organs appear to be highly excited, and it is certain, that many have been known to do things of which they were wholly incapable in the waking state. It is not unlikely but that the medical profession will, ultimately, agree to call this a state of insanity; for it is plain that, in many respects, it resembles that state, both in the nature of some of the mental exercises, and, also, in the muscular strength put forth.

The books contain many facts under this head—enough, certainly, to satisfy the most sceptical, as to the existence of what, perhaps, may be denominated the *magnetic sense*—a sense which sometimes enables certain persons to see, hear, &c., without the use of the organs of seeing and hearing. We have taken the following from Dr. Elliotson's able work on Human Physiology, and shall probably continue our extracts in a future number:—

"One evening towards the end of October, we played at various games after dinner: Signor Augustin took a part in them along with the rest of the company, and afterwards retired to repose. At eleven o'clock his servant told us that his master would walk that night, and that we might go and watch him. I examined him some time after with a candle in my hand; he was lying upon his back, and sleeping with open, staring eyes. We were told that this was a sure sign that he would walk in his sleep. I felt his hands and found them extremely cold, and his pulse beat so slowly that his blood appeared not to circulate. We played at backgammon until the spectacle began. It was about midnight, when Signor Augustin drew aside the bed curtains with violence, arose, and put on his clothes. I went up to him, and held the light under his eyes. He took no notice of it, although his eyes were open and staring. Before he put on his hat, he fastened on his sword belt, which hung on the bed post; the sword had been removed. He then went in and out of several rooms, approached the fire, warmed himself in an arm chair, and went thence into a closet where was his wardrobe. He sought something in it, put all the things into disorder, and having set them right again, locked the door, and put the key into his pocket. He went to the door of the chamber, opened it, and stepped out on the staircase. When he came below, one of us made a noise by accident; he appeared frightened, and hastened his steps. His servant desired us to move softly, and not to speak, or he would become out of his mind; and sometimes he ran as if he were pursued, if the least noise was made by those standing around him. He went into a large court and to the stable, stroked his horse, bridled it, and looked for the saddle to put on it. As he did not find it in the accustomed place, he appeared confused. He then mounted his horse and galloped to the house door. He found this shut; dismounted, and knocked several times at the door with a stone which he had picked up. After many unsuccessful efforts he remounted, and led his horse to the watering place, which was at the other end of the court, let it drink, tied it to a post, and went quietly to the house. Upon hearing a noise which the servants made in the kitchen, he listened attentively, went to the door, and held his ear to the key-hole. After some time he went to the other side, and into a parlor in which was a billiard table. He walked round it several times, and acted the motions of a player. He then went to a harpsichord on which he was accustomed to practise, and played a few irregular airs. After having moved about for two hours, he went to his room, and threw himself on his bed in his clothes, and we found him in them the next morning, for after his attacks, he always slept eight or ten hours. The servants declared they could put an end to the paroxysm only either by tickling his soles, or blowing a trumpet in his ear.

"Here, *hearing*, *touch*, the sense of *weight* and *resistance* were active, and probably *sight* to some degree; he was *roused* with *impunity*.

"Drs. Righellini and Pigatti describe, from their own observation, the sleep-waking of a man servant named Negretti, twenty-four years of age, who, from his eleventh year, had experienced attacks of the disease in March, not extending beyond April. March 16th, 1740, after going to sleep on a bench in the kitchen, he first began to talk, then walked about, went to the dining room and spread a table for dinner, and placed himself behind a chair with a plate in his hand, as if waiting on his master, the Marquis Luigi Sale. After waiting till he thought his master had dined, he cleared away, and put all the things into a basket, which he locked up in a cupboard. He afterwards warmed a bed, locked up the house, and prepared for rest. Being then awakened, and asked if he remembered what he had been doing, he answered, 'No.' Often, however, he did remember. On the 18th of the same month, he went through with the same process, but, instead of going to bed, went into the kitchen and sat down to supper. Dr. Righellini, with many others, were very curious to see him eat. At once recollecting himself, the man said, 'How can I so forget? to-day is Friday, and I must not dine.' He then locked up every thing and went to bed. If water was thrown in his face or his eyes were forcibly opened, he would awake, but remained some time faint and stupid. His eyes were firmly closed in the paroxysm, and he took no notice of a candle placed close to them. Sometimes he went against the wall, and even hurt himself severely. If any body pushed him, he got out of the way, and moved his arms rapidly on every side; and, if in a place with which he was not well acquainted, he felt all the objects around with his hand, and showed much inaccuracy; but

in places familiar to him, he was not confused, and went through with his business well. After Dr. Pigatti had shut a door through which he had just passed, he struck himself against it on returning. Sometimes he carried a candle about, but, on a bottle being substituted, he carried it about as if it were a candle. Dr. Pigatti was certain he could not see. Once in his sleep he said he must go and hold a light to his master in the coach. Dr. Righellini followed him closely, and found that he stood at all the corners of the streets with his torch not lighted, waiting a while in order that the coach which he fancied was following might pass, when the light was required. On one occasion he ate several cakes and some salad for which he had just asked the cook. He then went with a lighted candle into the cellar and drew wine, which he drank. He would carry a tray with wine glasses and knives, and turn it obliquely, to avoid an accident, on passing through a narrow doorway. Dr. Pigatti once substituted some strongly seasoned cabbage for a salad which he had prepared and had sat down to eat: he ate the cabbage, and then some pudding which was substituted for it, without perceiving the difference. At another time, having asked for wine, he drank water which was given to him; and sniffed ground coffee after asking for snuff.

"The state of *taste* and *smell* were here inquired into, and found inactive: *touch* and the sense of *weight* and *resistance* were active; *sight* inactive; and the actions were habitual.

"Dr. Francesco Soave relates the case of Castelli, the pupil of an Italian apothecary. The youth was found asleep one night, translating Italian into French, and looking out the words in a dictionary. They put out his candle, when he, finding himself in the dark, began to grope for it, and went to light it at the kitchen fire, though other candles were alight in the room. At other times he had gone down to the shop and weighed out medicines, and talked to supposed customers. When any one conversed with him on a subject on which his mind was bent, he gave rational answers. He had been reading Macquer's Chemistry, and somebody altered his marks. This puzzled him, and he said, "Bel piacere di togliermi i segni." He found his place and read aloud, but his voice growing fainter, his master told him to raise it, which he did. Yet he perceived none of the persons standing round him; and though he heard,' says Dr. Soave, 'any conversation which was in conformity with the train of his ideas, he heard nothing of the discourse which these persons held on other subjects. His eyes seemed to be very sensible to objects relating to his thoughts, but appeared to have no life in them; and so fixed were they, that, when he read, he was observed not to move his eyes, but his whole head from one side of the page to the other.'

"Here was a most decided *sight*, though the existence of it was so partial, and his mind could attend in so limited a way, that the presence of other candles was not noticed, and he went to the kitchen for a light: *hearing* was active; of course the sense of *weight*, and *resistance*, and *touch*. *Volition over the muscles* was rather weak, as his voice grew fainter while he read, and he did not exert the muscles of his eyes, but *moved his whole head*."

"In 1686, Lord Culpepper's brother was indicted at the Old Bailey, for shooting one of the guards and his horse. He pleaded somnambulism, and was acquitted, on producing ample evidence of the extraordinary things he did in his sleep. There is a somewhat similar story of a French gentleman, who rose in his sleep, crossed the Seine, fought a duel, and killed his antagonist, without recollecting any of the circumstances when awake."

"The next, as well as the cases mentioned at p. 633, illustrates the occasional great acuteness of sleep-wakers: 'A young man named Johns, who works at Cardrew, near Redruth, being asleep in the sumpter-house of that mine, was observed by two boys to rise and walk to the door, against which he leaned; shortly after, quitting this position, he walked to the engine shaft, and safely descended to the depth of twenty fathoms, where he was found by his comrades soon after, with his back resting on the ladder. They called to him to apprise him of the perilous situation in which he was, but he did not hear them, and they were obliged to shake him roughly till he awoke, when he appeared totally at a loss to account for his being so situated.'

"In the following cases a partial increase of mental power took place, as is sometimes noticed in insanity and common dreams:—

"A story is told of a boy who dreamed that he got out of bed, and ascended to the summit of an enormous rock, where he found an eagle's nest, which he brought away with him and placed under his bed. Now, the whole of these events actually took place; and what he conceived, on awaking, to be a mere vision, was found to have had an actual existence, by the nest being found in the precise spot where he imagined he had put it, and by the evidence of spectators who beheld his perilous adventure. The precipice which he ascended was of a nature that must have baffled the most expert mountaineer, and such as, at other times, he could not have scaled.

"Gassendi tells of a man who often rose and dressed in his sleep, went into a cellar and drew wine, appearing to see in the dark as well as in the day; but, when he awoke, either in the cellar or street, was obliged to grope his way back to bed. He often thought there was not light enough, and that he had risen too early, and therefore struck a light. He tells of another who passed on stilts 'over a torrent asleep one night, and on awaking was afraid to return before daylight, and before the water had subsided.'

"The intellectual achievements of Coleridge and others during ordinary dreaming, are as striking as any thing of the kind to my knowledge recorded of sleep-waking.

"An increase of muscular strength has sometimes, as in insanity, been noticed. One Sunday, Mr. Dubric, a musician at Bath, attempted in vain to open a window that happened to be nailed down in his bedroom. At night he arose in his sleep, and made the attempt successfully, but threw himself out and broke his leg."

"A female servant in the town of Chelmsford, surprised the family at four o'clock one morning, by walking down a flight of stairs in her sleep, and rapping at the bedroom door of her master, who inquired what she wanted; when, in her usual tone of voice, she requested some cotton, saying that she had torn her gown, but hoped that her mistress would forgive her, at the same time bursting into tears. Her fellow servant, with whom she had been conversing for some time, observed her get out of bed, and quickly followed her, but not before she had related this pitiful story. She then returned to her room, and, a light having been procured, she was found groping to find her cotton box. Another person went to her, when, perceiving a difference in the voice, she called out, 'That is a different voice—that is my mistress;' which was not the case—thus clearly showing that she did not see the object before, although her eyes were wide open. Upon inquiry as to what was the matter, she only said that she wanted some cotton, but that her fellow servant had been to her master and mistress making a fuss about it. It was now thought prudent that she should be allowed to remain quiet for some short time, and she was persuaded to lie down with her fellow servant that she might then awake in her accustomed manner. This failing in effect, her mistress went up to her room, and rather angrily desired her to get up and go to her work, as it was now six o'clock: this she refused, telling her mistress that if she did not please her she might look out for another servant, at the same time saying she would not rise at two o'clock, pointing to the window, to injure her health for any one. For the sake of the joke, she was told to pack up her things, and start off immediately, but to this she made no reply. She rebuked her fellow servant for not remaining longer in bed, and shortly after this became quiet. She was afterwards shaken violently, and awoke. She then rose, and seeing the cotton box disturbed, demanded to know why it had been meddled with, not knowing that she alone was the cause of it. In the course of the day several questions were put to her in order to try her recollection, but the real fact of her walking was not made known to her; and she is still quite unconscious of what has transpired.

"Here sight was suspended, but *hearing perfect*, as well as *touch* and the *feeling of weight and resistance*; all

was *forgotten;* she was *roused* by shaking, and with *impunity.*

"A lad named George David, sixteen years old, in the service of Mr. Hewson, a butcher in Bridge Road, Lambeth, at about twenty minutes past nine, bent forward in his chair, and rested his forehead on his hands, and in ten minutes started up, went for his whip, put on one spur, and went thence into the stable; not finding his own saddle in the proper place, he returned to the house and asked for it. Being asked what he wanted with it, he replied, to go his rounds. He returned to the stable, got on the horse without the saddle, and was proceeding to leave the stable; it was with much difficulty and force that Mr. Hewson, junior, assisted by the other lad, could remove him from his horse; his strength was great, and it was with difficulty that he was brought in doors. The lad considered himself as stopped at the turnpike gate, and took sixpence out of his pocket to be changed; and holding out his hand for the change, the sixpence was returned to him. He immediately observed, 'None of your nonsense, that is the sixpence again; give me my change.' When twopence halfpenny was given to him, he counted it over, and said, 'None of your gammon, that is not right; I want a penny more,' making the threepence halfpenny, which was the proper change. He then said, 'Give me my castor,' (meaning his hat) which slang term he had been in the habit of using, and then began to whip and spur to get his horse on. His pulse was at this time at 136, full and hard; no change of countenance could be observed, nor any spasmodic affection of the muscles, the eyes remaining close the whole of the time. During the time of bleeding, Mr. Hewson related a circumstance of a Mr. Harris, optician in Holborn, whose son, some years since, walked out on the parapet of the house in his sleep. The boy joined the conversation, and observed, 'He lived at the corner of Brownlow Street.' Soon after the arm was tied up, he unlaced one boot, and said he would go to bed. In three minutes from this time, he awoke, got up, and asked what was the matter, (having been then one hour in the trance,) not having the slightest recollection of any thing that had passed, and wondered at his arm being tied up, and at the blood," &c.

"An American lady, now, we believe, alive, preached during her sleep, performing regularly every part of the Presbyterian service, from the psalm to the blessing.—This lady was the daughter of respectable and even wealthy parents; she fell into bad health, and under its influence, she disturbed and amazed her family by her nocturnal eloquence. Her unhappy parents, though at first surprised, and perhaps flattered by the exhibition in their family of so extraordinary a gift, were at last convinced that it was the result of disease; and, in the expectation that their daughter might derive benefit from change of scene, as well as from medical skill, they made a tour with her of some length, and visited New York and some other of the great cities of the Union. We know individuals who have heard her preach during the night in steamboats; and it was customary, at tea parties in New York, (in the houses of medical practitioners,) to put the lady into bed in a room adjacent to the drawing room, in order that the dilettanti might witness so extraordinary a phenomenon. We have been told by ear witnesses that her sermons, though they had the appearance of connected discourses, consisted chiefly of texts of scripture strung together. It is strongly impressed upon our memory that some of her sermons were published in America.*

"A lady subject to spectral illusions would not only talk in her sleep with great fluency, and repeat great portions of poetry, especially when unwell, but even cap verses for half an hour at a time, never failing to quote lines beginning with the final letter of the preceding, till her memory was exhausted."

"Shakspeare, aware of the frequency of the phenomenon in sleep-walkers, represents Lady Macbeth as walking in her sleep with her eyes open, though he makes the royal physician ignorantly infer that therefore she must be awake, and a gentlewoman of the court know better,—

'*Doctor.* You see her eyes are open.
Gentlewoman. Ay, but their sense is shut.

"But a remarkable circumstance is that, though a particular sense appear torpid, it may be alive to *some* impressions. A sleep-waking female, mentioned by Lorry, could not be made to see, or hear, or be aware of the presence of any person but one, and him she evidently saw, and to him she used to address herself upon the subject of her dream. Dr. Pritchard gives an account of a boy who, in these paroxysms, became insensible to all external impressions, except that, when he happened to play on the flute, he sometimes perceived if other boys began to accompany him, and then evidently directed his attention to them. The insensibility to external impressions in sleep-waking, as in common sleep, is not in the organs of sense or the tract of their nerves, but in the portion of the brain most immediately connected with them; and, if these portions are not torpid, and at the same time there is excitement, either of a particular *kind,* as musical, for instance, or in connection with a particular individual, those impressions tell which are in relation with the excitement, while those which find all torpid with which they might be in relation are unnoticed. But, for this singular partial sensibility to take place, the portion of the brain in connection with the very extremities of the nerve of sense cannot be torpid: for, if it were, no excitement in relation to any object of that sense, no attention or direction of the thoughts, would avail. Such a portion is torpid sometimes. Negretti sat down to eat a bowl of salad; yet, though his thoughts must have been upon it, and his attention directed to it, he ate first cabbage and then pudding, which his friends substituted for it in succession, without perceiving the difference. When he had asked for wine, he did not detect that they gave him water; when snuff, that he received coffee. On the other hand, if the portion of the brain in connection with a particular sense is not asleep, its objects may be perceived though presented unexpectedly. Signor Augustin heard slight sounds at a distance, and was set listening. I therefore cannot agree with Dr. Pritchard, who attempts to explain these differences entirely by generalizing the remark made on Castelli's case by the reporters, and saying that, 'when attention is by a voluntary act directed to the particular operation of sense, the perceptive faculty of the sleeper is perfect, even remarkably acute. But when his mind is distracted, his reverie presenting different objects, even loud sounds are imperceptible to him.' If, on the other hand, a particular sense is not torpid, but the portion of the brain in immediate connection with its nerves sensible, impressions may not be perceived, on account of the excitement of the thoughts—of attention, in another direction; just as, when in study we become wrapped in thought, we cease to hear the chimes of a clock in our apartment: and, though a sensation take place, the mind may form a wrong judgment if imperfectly excited towards it; as when Negretti, if a blow was given him with a stick, or a muff was thrown at him, fancied in each instance it was a dog—mistakes similar to those which we make, if addressed or touched when in deep thought. And, although a sense be nearly torpid, a powerful partial excitement and concentration of thought, such as happens in common dreaming when we successfully effect what we had attempted in vain when awake, may cause very slight impressions on that sense to be accurately perceived. Probably, not merely is the *intellect* partially much heightened, in some instances; but a *sense* rendered exquisite, so that a person may see with the eyes so much closed that others consider them shut, and perceive in what others call darkness. I shall mention a case of extraordinary sensibility to light at p. 653, *infra.*

"The sensibility sometimes either quickly varies or becomes very peculiar in the paroxysm. For, while it was certain that my little patient in her delirium saw perfectly all round her, I darted my finger rapidly towards her eyes, but the pupil did not lessen nor the lids wink. The same extraordinary phenomenon occurred in a case presently to be quoted from Dr. Abercrombie, and in

* This lady was the celebrated "sleeping preacher," as she was called, Mrs. Baker. We have seen persons who have heard her at the times referred to.—Ed.

another from an American journal. I made the experiment repeatedly on different days. Another singularity was, that, though she evidently saw well around, she declared, on my holding up one finger, that there were two; on holding up two, she declared there were four; on holding up four, she said there was a large number. On presenting a watch to her, she could not tell the time, though she attempted carefully; she at length pronounced an hour, and persisted in it, but quite wrong. Once while looking at Baron Dupotet, she said he had a great many eyes, and then that his eyes turned right round in his head. In the delirium I always noticed one eye to be too near the nose.

"The following case also exhibited either rapid changes or an extraordinary state of sensibility:—Dr. Darwin relates the case of a young lady about seventeen years of age, who, every day for five or six weeks, had fits of violent convulsions, then retchings, next equally violent hiccups, then tetanus, and at last sleep-waking, becoming insensible, yet singing, quoting whole passages of poetry, and holding conversations with imaginary persons, and coming to herself with great surprise and fear, but with no recollection of what had happened. At length she could walk about the room in the fit without running against the furniture, and evidently had some external sense: for she took a cup of tea and expressed a fear that there was poison in it; and seemed to smell at a tuberose, and deliberated about breaking the stem, because it would make her sister so charmingly angry; once heard a bell, was less melancholy when the shutters were open, and impatient if a hand was held over her eyes, or her hands were held down, saying, 'She could not tell what to do, as she could neither see nor move.'"

For the Magnet.

THE MAGNETIC FORCES.

BY HENRY HALL SHERWOOD, M. D.

The facts I have stated, in regard to the manner in which the earth is magnetized, and the number and situation of its magnetic poles, are directly opposed to the theories of modern philosophers on these subjects. According to the theory on which they are generally agreed, the line of no variation, and the magnetic meridians of the earth, are irregular curved lines, and there are two magnetic poles somewhere within the arctic, and two within the antarctic circle. One of these, within each circle, being a *strong* pole, which moves very fast, and the other a *weak* pole, which moves very slow; and this is the machinery with which these philosophers have attempted to account for the variations in the declination of the needle; and with which they have drawn their fanciful curves on their Magnetic Charts, which are only equaled by the numerous fantastic curves they have drawn from the common magnets, to illustrate those they have drawn for the earth.

A necessary condition in the production of like magnetic forms, in different bodies, is like forms of the bodies magnetized; (see fig. 1, 2, 6, and 8, in the first number of the Magnet;) and as the form of the earth, and these magnets, have no common likeness, the magnetic curves of one cannot correspond with those of the other. A theory constructed on the form of the magnetic curves of one of these bodies must, therefore, be fallacious, and of no value, when applied to the other; and such has been the result of the labor bestowed upon this theory.

As Dr. Roget has given a very concise view of this theory, in the work before noticed, I will copy it here for the benefit of those who have not access to large libraries.

"*Variation of the Compass.*—It has been already stated, that if a magnetic bar be poised on its centre so as to move freely in a horizontal plane, and if no ferruginous body be sufficiently near to affect it sensibly, it will assume, when left at liberty, a direction nearly north and south. When disturbed from this situation, it returns, after several oscillations, to the same position. On this property is founded the mariner's compass, which is of such essential use in navigation. In moving horizontally towards the position which it thus tends to assume, the needle of the compass is said to *traverse.*

"It is found that in this country, as well as throughout Europe, the north pole of the compass deviates a certain number of degrees to the westward of the exact northern direction. This deviation from the true geographical meridian has been called the magnetic *declination;* but it is more usually known by the term *Variation of the Compass.* The vertical plane which passes through the direction of the horizontal needle at any particular place is termed the *magnetic meridian* of that place, in contradistinction to the *geographical* or *true meridian*, which is a vertical plane passing through the poles of the earth.

"There are but few places on the earth where the compass points directly to the poles; that is, where it exhibits no variation. As far as observation has extended, these places are situated in a line which encompasses the globe, and is called *the line of no variation.* In many of its portions it appears to form part of a great circle of the sphere, but in others it deviates much from regularity, presenting many flexures in its course. It may be considered as commencing from a point which may be designated as the *principal* arctic magnetic pole of the earth, and the exact situation of which is not yet perfectly ascertained, although the late voyages of discovery in these regions have enabled us to form a tolerable approximation to the precise spot, which appears to be a point somewhere to the westward of Baffin's Bay. After crossing the United States of North America it passes along a tract of the Atlantic, a little to the eastward of the windward West India Islands, till it touches the northeastern point of the South American continent. Thence it stretches across the Southern Atlantic towards the south pole, where navigators are unable to follow it. It reappears in the eastern hemisphere to the south of Van Dieman's Land, and passing across the western part of the Australian continent, is again found in the Indian Archipelago. Here, according to Biot, it divides into two branches, one of which crosses the Indian Sea and enters Asia at Cape Comorin; it then traverses Hindostan and Persia, and passing through the western part of Siberia stretches over to Lapland and the Northern Sea.* The second branch, pursuing a more directly northern course, traverses China and Chinese Tartary, and makes its exit from Asia in the eastern division of Siberia, where we again lose it in the Arctic seas. Between these there must exist an intermediate line of no variation in some part of the continent of Asia; but the observations we possess regarding it are, as yet, too imperfect to admit of any attempt to trace it correctly.

"If we consider these Asiatic lines of no variation as composing a single band, we may then consider the globe as divided by this and the corresponding American line into two hemispheres. In that hemisphere which comprehends Europe, Africa, and the western parts of Asia, together with the greater portion of the Atlantic, the variation is to the west. In the opposite hemisphere, which comprises nearly the whole of the American continents, both North and South, and the entire Pacific Ocean, together

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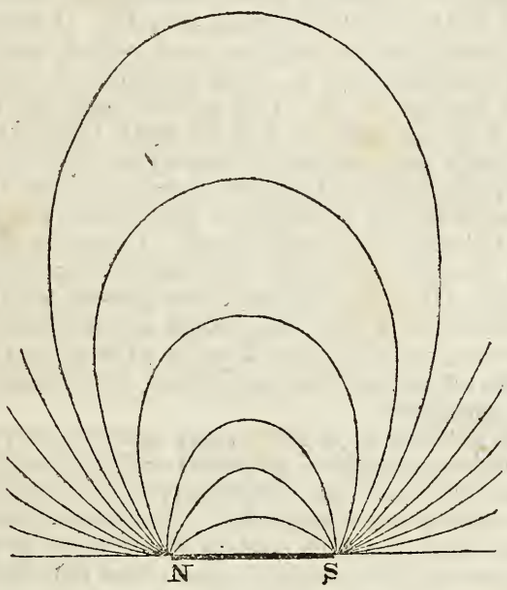
* To the weak magnetic pole.

with a certain portion of Eastern Asia, the variation is to the east."

"*Hypothesis of the Magnetism of the Earth.*—From a consideration of the general facts that have now been stated with respect to the influence of terrestrial magnetism, it will be sufficiently evident that the earth acts upon magnetized bodies in the same way as if it were itself a magnet; or rather as if it contained within itself a powerful magnet lying in a position nearly coinciding with its axis of rotation. This hypothesis was originally proposed by Dr. Gilbert in his work entitled, 'Physiologia nova de Magnete, et de Tellure magno magnete,' published in the year 1600; and Kepler ranks this hypothesis among the greatest discoveries in the annals of science."

The following is one of the doctor's most simple drawings of magnetic curves from a magnet, which is a sample of that which is supposed to be "lying in a position nearly coinciding with the earth's axis of rotation," of which he says:—

"Fig. 32.



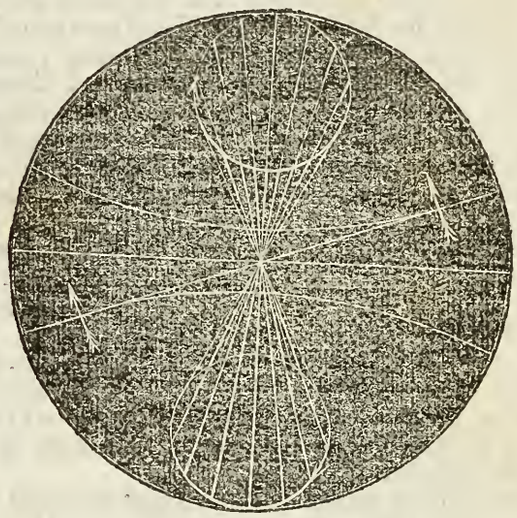
"It may be mathematically demonstrated, that if such be the law of the magnetic forces, the direction of the needle is that of the tangent of a peculiar curve of an oval shape, which has been denominated the *magnetic curve.* Every magnet having two poles N and S, (*fig.* 32) has a system of magnetic curves related to the line joining these poles, and which may be called its axis. The general form and disposition of these curves, according to their different distances from the magnet, is shown in the figure.

"The magnetic curves have the following remarkable property; namely, that the difference of the cosines of the angles, which lines, drawn from any point in the curve to the two poles, make with the axis, taken on the same side, is constant."

"The forms and disposition of these curves are elegantly illustrated by the lines in which iron filings arrange themselves when acted upon by a powerful magnet. In order to exhibit them, we need only place a sheet of paper or pasteboard immediately over a straight magnetic bar laid flat upon a table, and scatter lightly some very fine iron filings over the pasteboard, which is best done by shaking them through a gauze bag. If we then tap gently upon the paper, so as to throw them into a slight agitation, they will arrange themselves with great regularity in lines, which exactly follow the course of the magnetic curves, extending from one pole of the magnet to the other. These minute fragments of iron, being rendered magnetic by induction, have their dissimilar poles fronting each other, and therefore attract one another, and adhere together in the direction of their polarities, which is that of the tangent to the magnetic curve: thus affording a beautiful ocular exemplification of the mathematical properties of these curves."

The above is a brief but comprehensive view of the prevalent theory of Terrestrial Magnetism prior to the magnetizing of a connected iron ring, in 1837, when new and true laws of the magnetism of the earth were displayed and demonstrated on that remarkable instrument.

The magnetic axis *e* (fig. 6, first number of the Magnet) crosses the axis of rotation *a* at an angle of 23° 28′, and describes two inverted cones in every revolution of the pole, (fig. below:—)



The great circle of maximum declination passes through the magnetic poles, and crosses the earth's axis at the same angle with the magnetic axis, and moves from east to west at the same annual rate as the magnetic poles. It passed over the meridian of London, in 1820, where the declination of the needle then arrived at its maximum, and was 24° 36′ 18″ 31‴ W. at the Observatory, (Greenwich.) It remained stationary there three years and a half, and then the declination began to decrease, and will go on decreasing there, as the magnetic pole advances in the arctic circle, until it is reduced to nothing, in 166 1-2 years. The declination will then begin to be east, and will go on increasing until it arrives at its maximum eastern declination in 163 years, when the needle will again rest in its position three years and a half. The eastern declination will then begin to decrease, and will go on decreasing until it is again reduced to nothing in 166 1-2 years. The declination will then begin to be west, and will go on increasing 163 years, when it will again arrive at its maximum as before, and again rest in its position three and a half years.

Translated for the Magnet.

MAGNETISM AMONG THE CHINESE.

Extract from a letter of the Count of Mellet, marshal of the camp, to the Marquis of Puysegur.

PARIS, *Oct.* 8, 1787.

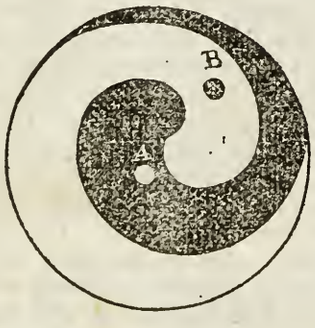
For a very long time, sir, before the appearance of doctor Mesmer, I believed in an aerial, celestial medicine, which the ancients knew and expressed under the name of *Rapha-el*, (or the medicine of God.) I believed in it, more particularly, when I

observed the *Rapha-im* announced as the powers of the world ; and what men are able to be as powerful as the primitive antediluvian people, if it is not those who pay every attention in procuring the advantages of health ? It was already possessed by all beings before they abused the gifts of a strong nature, and the powerful resources which Deity had distributed throughout every thing for the preservation of his works.

After some knowledge of electricity I likewise believed this medicine applicable by fire, is, without doubt, modified in a manner analagous to living nature, pretty nearly as we respire it with the air which serves it as a vehicle, without imagining how we communicate it, because, I feared the ordinary electrical machine, as operating with too much rapidity and power. Finally, Mesmer appeared, and I suspected that he had one of these *Rapha-im* which I sought. All that was said for and against only augmented my hopes, and the desire of seeing the Adamic medicine revived. I had seen a medicine of attitudes, or postures, in some Chinese memoirs, which had caused me some reflection. I, therefore, made a small collection of works on Mesmerism, and sent it to Pekin to father Amiot, a missionary of very great talents, whom I knew had the truly apostolic love for the progress of the sciences and the happiness of humanity, and I begged him to inform me if the *cong-fou* would not agree to all therein contained. His first letter, which unfortunately, I have not with me, was very satisfactory, and he promised me a still further account in the following year. You will find accompanying this, an extract from the second ; and with your permission, I will trace from memory the particulars of the first, which will serve as an explanation to the kind of exordium in that which I afterwards received.

The Chinese picture Nature, which they call *Tay-ki*, under the form of an eye, nearly resembling that of Isis. This general agent, this *Tay-ki*, forms a whole, male and female, that is to say, it contains opposite principles which they name *yang* and *yn*, and it is by the action of this *yn-yang* that every thing is produced, that all is born to be destroyed, and is destroyed only to be reborn under new forms.

Figure of Tay-Ki.



The *yn* A has a centre or *ly-yang ;* and the *yang* B has a *ly* or mover, *yn*.

These two *ly*, marked by two little rings, the one of which is white in the black, and the other black in the white of *Tay-Ki*, seek always to rejoin themselves to their analogies, making continual efforts, communicating motion to matter, and in producing the flowing and ebbing, follows the power of their successive explosions. * * * *

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From Father Amiot, Missionary in China, to the Count of Mellet.

Sir : I had only time last year to say a few words on animal magnetism, announced in Europe for the first time by Mesmer, and I promised to speak of it sooner or later, provided that in the course of this year I acquired any new light on that which concerns this important subject. I have reflected, I have informed myself, and I have had an opportunity of instructing myself by reading with attention the pamphlets which you had the goodness to send me by M. de Bertin, for which I thank you with sentiments of the most perfect gratitude.

The fruit of my researches has been a thorough conviction of the existence of a universal agent which influences every thing, to which every thing is submitted, and which, from the first moment of its existence even to when it ought to cease to exist, acts constantly by laws the most simple possible ; and has produced and will produce without cessation all the secondary causes which constitute the vast universe, as well as all the physical agents, which are necessary for the preservation and maintenance of order in it, so long as it will please the Creator to allow it to exist. This corporeal, but invisible agent, occupying all created space, is named by the Chinese *Tay-Ki*. We may give to it any name we choose. This name of *Tay-Ki* in the Chinese idea, signifies, *first material principle, grand comble, that in which, and of which every thing exists, &c., &c.* It incloses in its nature, the *yn* and the *yang*, which are the two *great movers* of it, and a *ly*, which is the first *author* (*moteur*) of it. This *yn* and *yang*, put into play by the *ly*, seek to join, or unite themselves ; they mingle and combine alternately in large, small, and equal quantities ; and from this mixture they form an infinity of beings who partake more or less of the nature of their *constituents*. I speak as clearly as I can, of a thing, which, in itself, is not wholly very clear ; but there are intelligent persons who understand at half a word that which others would not comprehend after the most lengthy explanations ; as you, sir, are among those of the first, I will continue in the same tone.

Each of these particular beings receives only the kind of being which is proper to each of them, because of the less or greater quantity of *yn* or of *yang*, of which they are constituted ; and it is this less or greater quantity which renders them more or less dependent on the one or the other of the two universal agents, *yang* and *yn*, which, in communicating to them the virtue of acting on other analogous beings subordinate to them, impresses upon them an action which they communicate to all around them, to other similar beings even to indefinity. I have equivalently told you this in my first letter, but I have to repeat it here, that I may enter upon that which I wish to mention.

The agent has two poles, which, from this circumstance Mesmer named *animal magnetism*, is only the one of these particular and subordinate beings submitted to the *two general agents yn* and *yang*. Its functions are limited in the animal kingdom, and we cannot draw from it any benefit for the cure of diseases which afflict the human race, without having previously a perfect knowledge of *yn* and *yang*. It is further necessary to know the subject on whom we wish to direct its sanative virtue ; and, in my opinion, it is that in which lies all the difficulty, or, at least, the greatest difficulty ; for example, if the subject is affected by an excess of *yang*, the physician adds to this superabundance by directing towards the patient the *yang* instead of the *yn*, he is certain that instead of lessening or extirpating the evil, he increases and strengthens it, and may produce death instead of a cure. It is, I think, for this reason, that Mesmer assures us, that unless we are acquainted with his secret, we cannot employ animal magnetism with any success. This is also expressed in other terms by the Chinese, when they say, that without

a perfect knowledge of the actual condition of the *yn* or the *yang* in a patient, we cannot flatter ourselves with being able to perform a cure. It is to acquire this knowledge, that for more than four thousand years, all those who wish to make a public profession of the art of curing, consecrate their laborious studies; but whatever may have been their success at different times, it does not appear that like Mesmer, they have ever been able to arrive at the point of doing without ordinary medicines. They serve themselves with these medicines as so many conductors of *yn* and *yang*, in convenient proportions of the one or the other as will remove the disease, and restore to health. We find in their medicinal works, only one example of cure operated by means of *yn-yang*, without any other remedy whatever, without any other conductor than a simple tube, and without touching or even seeing the patient. The following is the fact as related to me by a physician who had read it in a work made under the *Soui*, or at the latest under the *Tang*, that is to say, within, at least, ten centuries.

"A mandarin of high rank, it is stated in this work, had a dearly beloved wife, whom he saw wasting away from day to day, and rapidly hastening towards a dissolution, without complaining, whatever, of any pain or sickness; he wished to submit her to the examination of a physician, but she opposed him, saying, that in entering his house she had taken a firm resolve never to allow herself to be seen by any other man, and that she did not want any, she would sooner die. The mandarin begged, pressed, and solicited very much,—all was useless. He consulted the physicians, who told him that they could give him no advice unless they had, at least, some indications of the disease which affected the person for whom they were consulted.

"An old man of letters presented himself, and assured him that he would cure her without seeing her, without even entering into the apartment where she was, provided however, that she would be willing to hold in one hand one of the ends of a long tube of bamboo, while he held the other end. The mandarin regarded this as a curious expedient; and without any faith in the promised cure, he proposed it, nevertheless, to his wife, rather as something which would amuse than as a remedy.

"The patient entered into it with a good feeling—the old man came with his tube, of which he held one end, while the lady held the other, and applied it to that part of her body where she suspected her disease to lie, removing it from one place to another until she experienced painful sensations. She obeyed the directions, and when she had carried the end of the tube towards the region of the liver, the pains manifested themselves, and made her cry out loudly. 'Do not remove it,' said the old man, 'you will infallibly be cured.' After having continued in this state of pain for the space of more than fifteen minutes, he withdrew, and promised to return the next day at the same hour; and so he continued each day, until a perfect cure was effected, which was produced on the sixth day.

"The mandarin, full of acknowledgments, recompensed him liberally, but exacted from him a promise that he would frankly state if his method were not a *sie-fa*, that is to say, a superstitious art, or as we term it, a witchcraft. 'My art,' answered the old man, 'is in the most common laws of nature, and it is for this very reason, that it is always efficacious. It consists only in the knowledge that I have of *yn*, and of *yang*, which are in my body, likewise in my skill in directing the one or the other, as may be proper, towards any one in whom the *yn* and the *yang* are not in equilibrium, in order to re-establish them, &c.'"

This history, true or invented, proves, 1st., that, *at least*, there have been ten centuries during which the Chinese have had the idea of an agent concentrated in each individual under the name of *yn-yang*, depending upon the universal agent diffused throughout space under the same name; 2ndly, that every individual can, at his will, dispose of this peculiar agent, provided he has acquired the necessary knowledge so to do; 3rdly, that he can, in directing it properly, make any quantity of it whatever, pass to another individual, in order to unite it to the particular agent of this other individual, and, that he can, finally, make it serve him as a very efficacious means for the cure of diseases.

If I am not deceived, it is this which Mesmer attributes to that which he calls *animal magnetism*. I say more, the *yn-yang*, this universal agent which produces and modifies all bodies, which submits every thing to them in general, and to each of them in particular, to the general laws to which it is itself submitted, is the only key which can open to us the sanctuary of nature, It is in it, only, and by it, that we are able to give a reason for all the phenomena which we meet with, at every step in the obscure regions of physics, and by which we may be enabled to form a clear idea of the true theory of the world. Acknowledge, sir, that your presumptuous learned men, who regard the Chinese as such philosophers and physicians, may be well astonished, if they, necessarily, have to adopt the system of these same Chinese, as being, if not the truth, at least the most satisfactory, and approaching nearer to truth than any other; and as this system is very ancient with them, so that we cannot name its author, and as we likewise have it only by tradition since the first age of the monarchy, it is necessary to conclude from them, with M. Bailly, that they have received it from an anterior people, from a lost people; in a word, from the antediluvians, who were, probably, more advanced in the sciences than we of the present day possibly can be. J. King, M. D.

Human Magnetism.—Results of a very surprising character connected with this matter have been elicited in this city. The phenomena described have not been exhibited in a single case only, but have been displayed in various instances, with more or less vividness, according to constitution, sex, individual excitability, and the cultivation and exercise of the intellect. Now, it must be conceded that upon whatever theory or supposition these astounding facts are accounted for, enough is known, backed by authority which cannot be disputed as to the facts themselves, to arrest public attention, to silence unthinking prejudice, and to secure that patient investigation and rigid analysis demanded in a matter which certainly looks as if likely to revolutionize systems of mental philosophy, to affect medical science, and to bear upon many of the most important interests of the human race.

This is a subject not to be slighted or to be dismissed with a sneer. After all its experiences, the world should be wiser than to wrap itself in the mantle of indifference and skepticism, merely because a new proposition is presented, militating against preconceived ideas, and likely to disturb long established modes of thought and belief. There has been enough, and more than enough, of this description of folly, and mankind should now endeavor to attain a more healthy state of mind, by which novelty should not be disdained because it is novelty, or truths rejected when they do not harmonize with earlier impressions.—*The Pennsylvanian.*

THE MAGNET.

NEW YORK, JULY, 1842.

THE MAGNETIC PHENOMENA.

There are two kinds of what may be called magnetic sleep. Though, indeed, all sleep might be denominated magnetic; but we speak now of that kind of sleep which overcomes certain persons, either spontaneously or by sympathy with the will of another.

The phenomena described in our present number, under the head of "Sleep-waking," we should call the natural or spontaneous magnetic sleep; and it has, most commonly, been designated by the term somnambulism. Many have noticed the phenomena which have occurred in this state, who are altogether sceptical with regard to the phenomena, which are alleged to have appeared from *somnipathy*, or the induced magnetic sleep, when it will be seen, at once, that there is scarcely any thing more remarkable or miraculous in the latter than has often been known to occur in the former state.

But, in regard to the *induced* magnetic phenomena, of which such marvelous stories have been circulated, there are many things to be taken into the account, which should not be overlooked, especially by those who think they have penetrated, by this agency, as it were, into the secrets of another world. When this subject becomes better understood, it will not, perhaps, be a matter of so much surprise, that different magnetizers have been so frequently deceived, as to the real nature of the phenomena which they may have, in some form or other, been the means of producing. There is something quite captivating in many of the aspects which this subject often assumes. Of the reality of the magnetic influence there can be no reasonable doubt. Where it is used for the relief of human suffering, or in those cases where a state of sleep is produced, the mind of the operator is frequently taken by surprise, and carried so far from its true bias, that it becomes quite ready to receive, as equal realities, whatever may be, in any way, associated with this strange state.

The facts detailed in the article above named, and also in the preceding number of this work, are, certainly, sufficient to demonstrate, beyond all question, that man has a faculty, or sense, independent of the physical organs. And the same may be affirmed of insects, animals, and birds. Is it not this *sense* which guides the feathered tribes in their migrations from one hemisphere to another? Is it not this sense which guides the ox in selecting two hundred and seventy-six kinds of herbs, and, at the same time, teaches him to avoid two hundred and eighteen, as unfit for food? A species of spider digs a hole in earth, about two feet deep, and closes it with a curious trap door, so as to deceive and keep out every intruder. The tortoise, though hatched a mile from the water, no sooner leaves its shell, than it runs directly to the ocean, without a guide. The *sphex fabulosa* prepares little cells in the earth, then she fetches spiders, and deposites one with each egg, that the little ones may have food as soon as they break forth from the shell. All animals, without instruction, move with perfect skill from the time of their birth, from one place to another; and they use their limbs, and select their food, at the proper time and place. Mix salt and arsenic, and it is said a sheep will select the former from the latter, a thing which man could not do.

This sense has been called *instinct*, but is it anything more or less than the magnetic sense, if we may so speak, with which the great Creator has endowed every living being? True, for its exercise, or its various manifestations, in man, we have organs, the strength and activity of which depend on the power of the magnetic forces, and the strength and proportions of the different magnetic poles, or sympathetic points. But, it is well known to those familiar with human physiology, that in diseases of the nervous system, persons have been able to see without the use of the eyes, and to do things which they could not do when in a healthy or waking state. And cases may be found described in the books, where persons long sick, and enfeebled with disease, have, all at once, become so strong, by an excitement of the nervous system, as successfully to resist the strength of two or three strong able bodied men. The nerves and muscles, in such cases, seem to possess superhuman power, and the brain to be endowed with a most unaccountable susceptibility.

So in cases of mental derangement. Gentlemen of the Medical Faculty, who have hitherto resisted the assumptions of Phrenology, now quite generally admit, that, though the cause of mental derangement may be sometimes located in the stomach, for instance, yet this disease is so connected with the brain, that no treatment should be tolerated for a moment, which is not adapted to the laws which govern that important organ. Insanity results from the derangement of the magnetic forces of the brain. Hence we see the effects often produced by a violent blow upon the head; or the effects produced on the mind when the brain becomes charged from the stomach, or other parts of the body too highly stimulated. Monomania is the result of the *morbid action* of one organ. We call it insanity when the entire brain is diseased, or a number of the organs together. In a word, all *morbid* action of one or more organs of the brain, produces derangement in the mental exercises. This is so plain, that we presume no one will attempt to deny it; certainly no one who admits the claims of Phrenology.

But, it becomes a serious question, as to how we shall be able to decide between sanity and insanity? How or where shall the line be drawn between monomania, and the healthy action of all the cerebral organs? This may be as difficult as it is to decide on the line which divides light from darkness; for there can be no doubt but that the mental organs are often excited to unhealthy action, without giving the least suspicion to any one, that the person is laboring under monomania.

But when one or more of the mental organs become so impaired or excited in their exercises, that it is carried beyond a healthy action, such action as ceases to be in harmony with the healthy action of the other organs, and so far as to be shown in the conduct or mental exercises for any time, then we do not hesitate to pronounce it a case of insanity, or monomania. And in such cases, every one knows how common it is to speak of the *mind* as being diseased! *

But is it not evident, that, if the *mind* may be *diseased*, it may *die?* For, whatever is subject to disease, must, of necessity, be perishable, and in time, decay. However, without entering here into the inquiry as to any supposed difference between mind and matter, so far as the question of *immortality* is concerned, we may take it for granted, that the mind is imperishable, and, therefore, cannot become physically diseased. The organs of its manifestations may suffer disease—they may become over excited, and the mind become obscured and deranged in its exercises accordingly; but, during all this time, the conscious, thinking, self-determining principle, remains the same unchanging *identity*.

Human knowledge is the conscious perception of any positive or relative existence. But this consciousness may exist in various degrees in different persons, and in different de-

* In a course of Medical Lectures advertised to be delivered before the College of Surgeons, in this city, the present season, we notice one of the gentlemen, it is said, will "lecture on Diseases of the *Mind*."

excruciating kind. On the 28th of June last, the day before Mr. Sunderland commenced magnetizing me, my sufferings seemed beyond endurance.

I desired Mr. Sunderland to put me into the magnetic sleep for the purpose of having my teeth drawn, not anticipating any other relief; but I am now happy to say, that I have been very much relieved,—indeed, more so than I have ever been before in the use of medicine. The pain in my face has been subdued, and so far removed, that I feel more freedom from suffering, and have had more rest during the week since Mr. Sunderland commenced magnetizing me, than for two years before. If I could hope that the relief I have already experienced might be permanent, I should consider myself cured of one of the most distressing complaints which it seems possible for the human frame to endure. SOPHIA C. PARKER.

7 Green-street, Boston, Mass., July 7, 1842.

Thinking it might be more satisfactory to some who may read these statements, to have an account of the last two cases from an experienced physician, we requested Dr. Sherwood to examine them. The following is his testimony:—

Mrs. Caroline A. Wilkins, 72 Carmine-street, New York, light complexion, aged 20 years. I called to see her, by request of Mr. Sunderland, July 5, 1842, and, on an examination of the case, found her affected with tubercular disease of all the organs, including the brain. The disease had also extended to the muscles, rendering it altogether *one of the most deplorable cases I have ever seen.* I also examined, at the same time and place, the case of Mrs. S. C. Parker, of Boston, and found her affected with tubercular disease of the brain, lungs, heart, and liver. H. H. SHERWOOD, M. D.

New York, July 8, 1842.

We do not, by any means, assume, that a thorough cure has been effected in either of the cases above referred to, but we do say, what the patients themselves, together with their friends and neighbors, agree in testifying, that the relief afforded is very remarkable, and it encourages us to hope that it may be extended to a permanent cure.

PHRENO-MAGNETISM.

For the Magnet.

MENTAL PHENOMENA.

Mr. Editor:—The following account was originally drawn up for one of our city papers. You will, doubtless, recollect the facts here related, and readily grant this a place in your interesting miscellany:—

Having had the privilege of witnessing a series of exceedingly interesting mental phenomena, on the evening of the 7th inst., with your permission, I will give your readers a plain, unvarnished statement of what I heard and saw. The patient was a blind lady, of about 28 years of age. A number of scientific gentlemen had been invited to *examine* the subject, and, at about 8 o'clock the company were seated, and prepared for the exhibition.

The Rev. Mr. Sunderland being present, at the request of Mr. Peale, the operator, briefly stated the object of the examination. The subject of Magnetism, in connection with Phrenology, he said, was comparatively new to them all. We are satisfied, however, that it is worthy of the most serious examination. In the course of the experiments performed by himself the last fall, it was found that the patient could not only be put to sleep, but, by *operations on separate portions of the brain*, certain very remarkable phenomena were the results. And, carrying these operations still further, he had ascertained that the different functions of the brain may be *excited*, in a most remarkable degree, and even to *ecstacy*, and insanity or madness, both in the sleeping and waking state. And Mr. Peale has invited the gentlemen present, for the purpose of submitting these phenomena to such *tests* as they may think proper to institute, in order to satisfy themselves of their reality. No plan has been agreed upon for the proceedings, and Mr. Sunderland suggested that the patient and Mr. Peale should retire, while Mr. O. S. Fowler, the Phrenologist, who was present, might briefly name a few of the organs, and describe the natural language of those organs, as well as the common results of their exercise. The patient having retired, Mr. Fowler stated, that he believed that neither Mr. Peale nor the patient had any tolerable knowledge of the location of the different organs, or of Phrenology, generally. He then proceeded to give a most interesting description of the natural language of the different organs, and how a person always acts and speaks when those portions of the brain are excited.

Mr. Peale having now returned with the patient, stated, that he could operate on the organs, either when the patient was in the Mesmeric sleep, or awake; and even without touching the patient. The operations on the organs, by disturbing them, as it was called, were first done last July or August, at the suggestion of Mr. Sunderland. Nothing of the kind, as far as he knew, had ever before been heard of or thought of; and it was remarkable, that when first suggested by Mr. Sunderland, the results had been precisely as he anticipated. They had found, that the organs were susceptible of much greater activity than was at first supposed, as he was now ready to demonstrate, when they should point out to him what organs they wished to see exercised. The organs were then designated by Mr. Fowler, who was put in communication with her, and asked her various questions, generally, however, not till she herself had spoken on something relating to the organ which had been excited.

Language. These organs were no sooner operated on, than the patient began as follows:—"O! I have a great deal to tell you! I want to tell you all about my journey to Newark—O! you never saw such a thing—Well, I'll tell you all about it," &c., &c.

Causality was next excited in connection with Language, when she began thus:—"Don't you think that was a very good *reason why* I should not go to Boston? *Because* Mrs. ——, reasoning, could not doubt the evidence of her own senses, could she?" &c.

Self-Esteem. As soon as this organ had been operated on, without a word spoken to her, she immediately straitened up, and setting her head back in a peculiar position, she began:—"I think *I* did very well at Newark the other night. I did it,—they could not have done any thing without *me.*"

She was asked, if she was going to Boston to be mesmerized, when she said:—"*I* go to Boston to be mesmerized by an *actor?* No! not *I.* If Mr. Hill wants me, I very much doubt whether he gets me. *I* go to Boston?—no, *I* think too much of myself. I am satisfied with *myself*,—I am right, and you will find me so, if you reflect upon it."

Approbativeness. On exciting these organs, she gave her head a peculiar motion, backward; and, on Mr. Fowler's intimating that some thought her a humbug, she commenced:—"O! I feel very angry, *because* they doubt my word; and I am not very

well pleased with *you*, because you didn't speak to me to-night."

Combativeness. The head was now jerked back, alternately, over each shoulder; her mouth opened and shut quickly, and the features assumed an angry appearance. She commenced:—"O! I am so *mad!* You didn't speak to me, and I am mad with you. But, I *scorn* to get mad; but I never get mad without a *cause*. I am angry with every body; but I *scorn* to make a confession to any one of them! Isn't it reason enough for me to be mad when people doubt my word? I am better than you—I am more intelligent, but *I* don't choose to show how much *I* know. Yes, I tell you, I feel my own importance."

Approbativeness was now still more excited:—"I'll tell you my disposition—and, if you only *think* you'll find that I am right. I love the praise of people, but *I'll* not stoop to gain it. I'll not have people doubt my word,—I'll make no confession even when in the wrong—I'll make no confession, even when angry."

Self-Esteem was reduced. She now became very angry, and struck at Mr. Fowler:—"O! I'll *reason* with you! but you must not make me angry."

Destructiveness. The countenance now assumed a terrific aspect, and she shook her head from side to side, seized her clothes, and tore some paper, which was put into her hands, in the most violent fury. These last named organs were immediately subdued, leaving Approbativeness, &c. still excited: "O! I want people to say I am the best singer that ever was; my friends think I am very handsome. If I am blind, this deficiency is all made up in my other qualities."

The excitement was removed from all the organs, leaving her still asleep. She complained of pain in the front and back parts of the head, which was removed by the hands of the operator.

Self-Esteem was now excited, without touching the head of the patient. She immediately raised herself up, stuck back her head, and, on being asked, said:—"How *should* I feel? I am very well satisfied with myself," &c.

Benevolence was next excited in the same way. She instantly dropped her head forward, and exclaimed:—O! I am *so sorry* for the *poor* people—can't you give me something for the *poor?*"

Hope, Veneration, and *Marvelousness.* The countenance became calm and placid,—and without being spoken to, she said:—"O! I am so sorry for those poor people—and I want to go to church. Don't you think that greater efforts should be made to teach christianity to poor people? O! I *hope* they will; yes, I have that *faith* that they will embrace christianity." *Marvelousness* being more excited, her features assumed a heavenly smile:—"I very much desire that every body should go to church; and I *hope* they will believe. It is necessary that they should not merely *believe*, but *realize* it. I have thought I had *visions.* O! I trust in God's providence, because my *hope* and *faith* are so strong; not the least shadow of a doubt crosses my mind. My *hopes* are so bright, and I wouldn't give them up for any thing in this world. O! I feel perfectly happy, and I want every body to feel as I do."

Mirthfulness. She immediately commenced laughing immoderately; and saying all the while, "It's wrong to laugh so—I cannot help it, 'tis wicked, but I can't help it," &c. The excitement being removed from Mirthfulness, she said she had no recollection of having laughed, and did not believe she could have laughed in such a state of mind.

Combativeness again. The head was thrown back alternately, each side, as before. "O! I do feel angry; but I shall be happy when the time comes for me to be free from anger. O! I hope I shall be free; but I am so mad—I should like to go to church." Combativeness was now subdued, and, as before, the countenance became placid.

Imitation was next excited, and Mirthfulness a very little. She immediately commenced *mimicking* cats, dogs, babies, and the voice and manners of particular persons. This was peculiarly amusing, and was done in such style as I do not find it in my power to describe.

Number. She instantly began to count the folds in her sleeve, her hair, &c.—"O! I must count—O! how I wish I had studied arithmetic—O! how I love it—O! I can't count fast enough, 1, 2, 3, 4, &c. &c. O! I'll tell you; when I went to school I didn't love arithmetic—O! I wish I had learned it."

Caution. The countenance became excited as if she would cry; and, stretching out her hands to the operator, she said:—"O! I am so afraid I shall fall—I am so afraid they will run over me when I go home," &c.

Alimentiveness. On the excitement of these organs, she seized and bit her hand with such violence, that Mr. Peale found it quite difficult to disengage it; and when she let go, the blood was seen around the print of the teeth. He now reversed the organ of Benevolence, and, on being asked, she declared she felt no pity for the poor, and did not feel disposed to help them, as she was poor herself. Mr. Peale then caused her to read the names of various persons present, after which she was waked up, and the company separated at about ten o'clock, apparently much gratified.

Thus, Mr. Editor, I have given you and your readers an exact account of what I, and others, both heard and saw, and under circumstances which, in my opinion, precluded the possibility of collusion. I have stated the facts as they occurred, and I leave others to draw what inferences they please.

New York, Jan. 8, 1842. D.

CORRESPONDENCE.

Cincinnati, Ohio, June 14, 1842.

Rev. La Roy Sunderland:—Dear Sir,—Two months since I was an unbeliever in Magnetism. Circumstances prompted an investigation, and my full conviction of its reality is the result of my own experiments. I will report one, which, I doubt not, will greatly interest you. It was made in May last, in the presence of several of my friends. It was the second one of the kind I had made, but I have witnessed a similar one by two other gentlemen, but upon the same subject, and with the like, if not more successful, results.

I placed Mr. S. in a sound magnetic sleep in about five minutes. I have magnetized the same gentleman four times. He is a reputable private citizen, whose veracity no one would venture to question. After performing some few experiments in Volition and Sympathy—such, for instance, as causing him to rise from his chair, cross the room, and reseat himself—the chair having been placed in another part of the apartment—and in Sympathy, when my hair was pulled, my hand and ear pinched, he would say, "You pull my hair"—"You pinch my hand"—"You pinch my ear"—and when I took tobacco into my mouth he would say, "I taste tobacco." I asked him to play a game of "Euka" with me. He replied, "Yes." I took the cards, shuffled them, and we cut for deal. It was his deal, and without my telling him the fact, *he* took up the cards, and dealt them out as is usual in

"Euka." I passed, *he* discarded, and took up the trump. He played his cards out with good judgment, and made his point. He was blindfolded, and a pasteboard—the cover of a box about two feet in length by about eighteen inches in width—was held between his face and hands, resting upon his wrists, so that it would have been impossible for him to see had he been awake, and not blindfolded. In consequence of the extreme rigidity of his muscles, much time was consumed in playing out his hand—say some fifteen minutes. It was frequently necessary to relieve his arms of that rigidity by making the reversive passes. Whenever I took the trick, he would take up the cards and hand them over to me; and when the trick was his, he would take them up and turn them down to himself.

And here it must be remembered, that he played his cards himself, and not by my will. I did not see or know what cards he had in his hand. The whole play was his own act. It was "vision without the eye," beyond all question. He would pass his fingers over the upper edge of the cards several times, never placing them upon the face to indicate that it was by the sense of touch, but would, occasionally, draw out a card, hold it off some little distance from him, then replace it, take another, which would prove to be the card he wanted, and play it. I repeat, he played his cards well, with excellent judgment. In this instance I played but the one hand, which was sufficient to test the success of the experiment. I then asked him to take a glass of wine with me. He replied, "I will." I placed the glass of wine in his hand, and, after relieving his arm and mouth by one or two passes, he drank off the wine. After restoring him, I magnetized his arm, his hand, and even a single finger. I also magnetized one eye—shut it up so completely as to deprive him of all power over it.

A strong and exciting interest has been created in the minds of this community on the subject of Magnetism. Some twenty gentlemen are about organizing a society for the purpose of prosecuting investigation. They hold their first meeting to-morrow evening.

One number of your Magnet has reached us. I think you can get from 50 to 100 subscribers in this city. I will aid it all I can—will forward you some names in a few days.

Very respectfully, yours, &c.,

WILLIAM R. FOSTER.

Princeton, N. J., Aug. 28, 1841.

Dear Sir:—Your letter, making inquiry in reference to Animal Electricity, was received yesterday, but I fear I can give you but little information on the subject. We are, as yet, in possession of but a few definite facts, belonging to this part of science, and these are so insulated as scarcely to be entitled to the appellation of scientific.

The term polarity, of which you make use, is rather an indefinite expression, derived from magnetism, and sometimes rather loosely applied to certain electrical phenomena, but nothing like these has, as yet, been shown to exist in connection with the brain. Of the electro-magnetism of the human system I know nothing, and I can say, with certainty, that no branch of science bearing this name has an existence in the circle of the positive sciences of the present day.

In reference to the galvanism of the human system, it may be said, that there are some striking analogies between the operations of the nervous influence and those of the galvanic current; but no definite connection has, as yet, been made out between them, although many experiments have been instituted for that purpose. Prevoost and Dumass, two Genevese philosophers, advanced the hypothesis, a few years since, that muscular contraction is the result of a current of electricity from the brain, through the filaments of nerves which surround the bundles of muscular fibres. And Prevoost, just before his death, in 1839, (I think) announced that he had succeeded in imparting magnetism to iron needles by means of the nervous influence. As yet, however, this experiment has not been verified by any other person, although many have attempted it, and myself among the number. No effect could be obtained, although the directions of Prevoost were observed, and I am almost certain that he was misled by some fallacy in the arrangements of the apparatus or the indications he observed. You will find a notice of this experiment in the *Bibliotheque Universelle de Geneve*, and I believe there is a brief account of the hypothesis before mentioned, given in Melim Edward's Physiology.

A variety of experiments were made by the English and French physiologists by dividing the gastric nerves of different animals, and introducing a galvanic apparatus into the circuit; but it is not certain whether the effects observed were due to the specification of the electricity, or to the ordinary vital action stimulated by galvanism.

In the July number of the London, Edinburgh, and Dublin Philosophical Magazine, you will find the beginning of a paper by Martin Roberts, Esq., on the analogy between the phenomena of electrical and nervous influence. The author, however, appears to have only a very superficial acquaintance with the principles of natural philosophy, and his speculations are, therefore, of little or no value. Philosophical discoveries in the present advanced state of science can only be made by those who have prepared themselves by long study for the purpose, and have served, as it were, an apprenticeship to the business of experimenting. In order to advance any of the experimental sciences, we must have a profound acquaintance with all that has been done in the particular branch, as well as with all the collateral ones. We must be familiar with the processes of experimenting, and with the logical methods of reasoning which alone are admissible in science. Respectfully yours, &c.

JOSEPH HENRY.

Rev. La Roy Sunderland.

P. S. You will find in the Annales de Chimie et de Physique, by consulting the general index to the work, several papers by Marianini on the effects of galvanism on animals, and also on the subject of electrical fish.

We were favored with the foregoing letter from Professor Henry, last Fall. His well known scientific attainments entitle his opinions to great weight on this subject; and hence we have given this letter a place in our columns.

HUMAN MAGNETISM.

PROCESS OF MAGNETIZING.

The methods of different persons vary, and it would not, perhaps, be possible to give directions which should always be followed, by different persons, in all cases.

There are, however, a few simple rules, or prerequisites, in which all are agreed, who are familiar with this subject. They may be briefly stated as follows:—

1. The attempt to magnetize should never be made from idle curiosity. The *object* should be to do good, to relieve suffering humanity.

2. No person should attempt to magnetize whose health is not good. The operator should be of sound

health, and a good heart. The more Benevolence and Conscientiousness, Concentrativeness, Firmness, and power of Will, the better.

3. The operator should be superior to the patient, both in physical and mental power.

4. The attempt should not be made in a promiscuous company.

5. There are some temperaments which do not agree; that is,—persons of one temperament do not seem to have much magnetic power; and others do not seem to possess much power over persons of the same temperament. Hence, it would seem, that some knowledge of the temperaments, and of the power, and different susceptibilities of different persons, should be possessed by the operator.

We have different methods, which we adopt, with different persons. But, the directions of Deleuze are so appropriate, in the main, and have been so generally approved, that we prefer to give them here, in preference to any extended remarks of our own. No one, perhaps, was ever more successful in the cure of disease by Magnetism than Deleuze, and hence it is, that persons familiar with this subject, generally observe, more or less, the rules laid down by him for Magnetizing. They are as follows:—

The principles we have given in the preceding chapter are essential, invariable; and, in all cases, the power and efficacy of magnetism depends upon their application. The processes of which we are about to speak are not alike employed by all magnetizers. Many of them follow peculiar ones; but, whatever method they pursue, the results are nearly the same. The processes, however, ought to be diversified according to circumstances, and even by the desire of avoiding what might appear extraordinary. What I am about to say, is useless to persons who have acquired the habit of magnetizing. Let them continue to follow the method which has constantly issued in the comforting or the curing* of their patients. I write for those who, not yet knowing anything about it, are embarrassed in the exercise of a faculty whose existence they do not doubt; and I am about to teach them the manner of magnetizing which I adopted after having received instruction, and after having collected and made observations during thirty-five years.

When a sick person desires you to attempt to cure him by magnetism, and neither the family nor the physician make objection to it, if you feel the desire to second his wishes, and are resolved to continue the treatment so long as it shall be necessary, settle with him the hour of the sittings, make him promise to be exact, not to limit himself to an attempt of a few days, to conform himself to your advice in relation to regimen, and not to speak of the undertaking except to persons who ought naturally to be informed of it.

When you are once agreed, and determined to treat the thing seriously, remove from the patient all persons who would be troublesome; do not keep near you any except necessary witnesses, (one only if it can be so,) and request of them not to occupy themselves at all with the processes you employ, nor with the effects that follow, but to unite with you in the intention of doing good to the patient. Arrange things so as not to be too cold or too warm, so that nothing shall interfere with the freedom of your movements, and take precautions to prevent all interruption during the sitting.

Cause your patient to sit down in the easiest position possible, and place yourself before him, on a seat a little more elevated, so that his knees may be between yours, and your feet by the side of his.—Demand of him, in the first place, that he give himself up entirely, that he think of nothing, that he do not trouble himself by examining the effects which he experiences, that he banish all fear, and indulge hope, and that he be not disquieted or discouraged if the action of magnetism produces in him temporary pains.

After you have brought yourself to a state of self-collectedness, take his thumbs between your two fingers, so that the inside of your thumbs may touch the inside of his. Remain in this situation five minutes, or until you perceive there is an equal degree of heat between your thumbs and his; that being done, you will withdraw your hands, removing them to the right and left, and waving them so that the interior surface be turned outwards, and raise them to his head; then place them upon his two shoulders, leaving them there about a minute; you will then draw them along the arm to the extremity of the fingers, touching lightly. You will repeat this *pass** five or six times, always turning your hands and sweeping them off a little, before reascending; you will then place your hands upon the head, hold them there a moment, and bring them down before the face, at the distance of one or two inches, as far as the pit of the stomach; there you will let them remain about two minutes, passing the thumb along the pit of the stomach, and the other fingers down the sides. Then descend slowly along the body as far as the knees, or farther; and, if you can conveniently, as far as the ends of the feet. You may repeat the same processes during the greater part of the sitting. You may sometimes draw nearer to the patient. so as to place your hands behind his shoulders, descending slowly along the spine, thence to the hips, and along the thighs as far as the knees, or to the feet. After the first passes you may dispense with putting your hands upon the head, and make the succeeding passes along the arms, beginning at the shoulder, or along the body, commencing at the stomach.

When you wish to put an end to the sitting, take care to draw towards the extremity of the hands, and towards the extremity of the feet, prolonging your passes beyond these extremities, and shaking your fingers each time. Finally, make several passes transversely before the face, and also before the breast, at the distance of three or four inches; these passes are made by presenting the two hands together and briskly drawing them from each other, as if to carry off the superabundance of fluid with which the patient may be charged. You see that it is essential to magnetize, always descending from the head to the extremities, and never mounting from the extremities to the head. It is on this account that we turn the hands obliquely when they are raised again from the feet to the head. The descending passes are magnetic, that is, they are accompanied with the intention of magnetizing. The ascending movements are not. Many magnetizers shake their fingers slightly after each pass. This method, which is never injurious, is in certain cases advantageous, and for this reason it is good to get into the habit of doing it.

Although you may have, at the close of the sitting, taken care to spread fluid over all the surface of the body, it is proper, in finishing, to make several passes along the legs from the knees to the end of the

* I might add the words comforting and curing, because every method having for its object the production of surprising effects, or to show the power of the magnetizer, is essentially vicious.

* I employ the word pass, which is common to all magnetizers: it signifies all the movements made by the hand in passing over the body, whether by slight touching, or at a distance.—*Dr. Underhill.*

grees in the same person at different times, according to the size and proportions of the mental organs. Undoubtedly it must exist in the greatest perfection, in those minds where the cerebral developments are the nearest to perfection, not only as it respects their size and proportion, but as it regards their healthy exercise. So that, knowledge must be the highest in that mind, where the brain is of the necessary size, and where the organs are properly balanced, and sufficiently exercised with healthy action. And we must admit the *competency* of the human mind in a waking state, where the mental organs are thus properly developed and balanced, to determine on the question of sanity, and whether any given proposition be true or false. We cannot allow that the human mind may ever set up a standard of its own attainments, in any but a waking healthy state. To admit the reverse of this would be opening the door for the annihilation of all knowledge, without leaving us any available use of either sense or perception.

The question at the present time, is not whether the mind, in the magnetic sleep, may not have perceptions of facts, which it could not know in the waking state; but it is as to whether the knowledge said to be obtained in the magnetic sleep, should form a standard by which all other knowledge possessed by the human mind in a waking state, should be tried and judged? That is, shall we judge of the knowledge said to be possessed by a person in the magnetic sleep, by the knowledge we have of the mind, and the nature and limits of evidence in the waking state, or shall we judge of the latter by the former?

In order to fully understand the human mind, and, as far as possible, the nature of its capabilities and exercises, of course we must examine it in its different states. We must dissect, as it were, its numerous phenomena; we must examine it in its sleeping state; we must analyze its operations when they are manifested through a diseased brain; we must know how different states of the nervous system effect its mysterious agency, and be able to show the difference betweeen the results of morbid and healthy cerebral action. And hence it becomes an inquiry, of the utmost importance, as to what kind of action the brain is subjected to in the production of the phenomena which result from the magnetic sleep. Is it morbid, or healthy?

That what we have denominated the *excitement* of the cerebral organs, is morbid, we have no doubt at all. We have seen how the action of the organs may be *increased*, in certain persons, either awake or asleep; but that the excitement, when it is extraneous, or when it is out of proportion with the state of the other organs, or with the natural and healthy state of the brain, is morbid, cannot admit of a doubt. We must take another opportunity for describing what may be considered a healthy action of the brain; but we may now assume what, probably, no one will feel disposed to deny, that an *unnatural* or extraneous excitement, of any one or more of the mental organs, is *morbid*. We say unnatural, because, sometimes, an organ may need exciting to its natural tone, or degree of activity; in such cases, the action may be perfectly healthy, though, indeed, not caused by any inherent stimulus. But we refer, now, to those excitements of the mental organs which produce the remarkable results which have so much astonished all who have witnessed them; those excitements which exceed the nature of the person in whom they are produced.

We know what results follow Monomania. A man of good education, and intelligent, called on us some time since, and gave the following account: "I see," said he, "constantly above me a man walking upon the clouds!" But where is he, we inquired? "O," said he, "there! there! *there!!* he is, see, see him! See! he has a cloud wound around his hat." And we could make nothing so real to the perception of that Monomaniac, as the sight of that man walking upon the clouds.

Another, suffering from an over excitement of Marvelousness and Veneration, told us he saw the devil, and he even showed us the spot where he had had a fight with his satanic majesty; and pointed to the ground torn up and scattered in various directions as evidence, indisputable, of what he stated. Now we affirm, that in these cases, (and thousands of others like them could be named) the perceptions of these Monomaniacs were as real, and precisely of the same character, as those produced in the minds of persons in the magnetic sleep. A short time since we excited the Ideality of a very intelligent lady while in the magnetic sleep, and she immediately saw and described a very singularly looking man, *dancing*. At another time she saw various odd looking animals and persons, all of them, undoubtedly, the creations of this excited organ. Indeed, we might fill our columns with accounts of a similar character, describing visits to the sun, moon, and stars; and, of which we may make just as much as of the man seen walking upon the clouds.

But we shall be reminded, that persons in the magnetic state have often been known to describe things which they never saw, correctly, and things even which no one else had ever seen, at the time. True. And the same may be said of natural sleepwakers. But, in these cases, is the brain in a state of healthy action? Or, is the entire cerebral mass in a state of morbid excitement? We incline to the former opinion, though, indeed, we are aware that some plausible reasons may be assigned for the latter.

"Things Hard to be Understood."—We have been fully aware of the difficulties we should have to encounter in meeting the responsibility alluded to in the following extract:

"It was with an honest and earnest desire to obtain reliable information, that we turned our attention to the Magnet. The 'thousand marvelous stories,' kept in circulation by the newspaper press, have had the effect to fix the public eye with much intensity upon this publication; and we trust its editor is not unaware of the responsibility of the post he occupies—that the popularity and success of his work will, in a great measure, depend upon his speedily disabusing the public mind of the impositions of quackery and villany, and honestly teaching the truth—what is really known and what is merely conjectured. And, if it be not impertinent, we would add—we hope he will do this in language intelligible to the common reader; for in employing old words to describe new things, there is no little danger of being misunderstood. In the first number of the Magnet there are, we think, *some things hard to be understood*—probably for the reason above alluded to; for instance, the phrase, 'by operating,' page 9th, used to denote some new method of 'exciting the organs of smell.' We are acquainted with no other method of doing this than by bringing them into contact with the effluvia of strong scented substances. But as this, we presume, cannot be the 'operation' intended in the Magnet, we shall look for more light in the succeeding numbers."

[*Skaneateles Democrat.*

By the term "operating," nothing more or less is meant, that the application of the hand or fingers to any particular part of the head or face of the patient, as is explained in the review of Dr. Buchanan's work, and, also, in the article headed, "Process of Magnetizing," in the present number.

We find a person of the right temperament, and we apply the thumb and forefinger to what the French call the "wings of the nose," where we find the poles, or sympathetic points of the organs of smell, which are located in the brain, forward of Thirst and Alimentiveness, and in this way we excite a desire in the patient to smell. And so of the other organs, and their sympathetic points in the face and neck.

With regard to what is really known, and what is merely conjectured, our cotemporary may rest assured, that we shall do justice to truth in this matter. We have elsewhere stated, how easy it is for persons to be deceived in the results of

what must be considered morbid excitements of the brain; and in our future numbers we shall omit nothing which may be necessary to give a clear and philosophical view of this whole subject, as far as it may be in our power to contribute to this end.

Abuses of Magnetism.—While we fully believe that Magnetism may be used for the most benevolent of purposes, and that it has already contributed, in thousands of cases, to lessen human suffering, we are free to confess, that, like other good things, it may be abused. And, if the fears which are so often expressed on this subject be not altogether without some foundation, how fearful is the weight of responsibility which rests upon those who have to do with this subject; and the more so, as we know that it has been presented to the community in so many repulsive forms, or through so many disreputable channels! We apprehend that a great error, generally, prevails in relation to the degree to which the *will* of one person may be subjected, by magnetism, to the will of another. Our experiments have demonstrated, we think, that there is an organ appropriate to this faculty,* and, in every case, when we have excited it, we have found it utterly out of our power to control it. True, we could control the state of the nervous system, or excite, or suppress, the action of any of the other organs; but the WILL always has its own way; and we are compelled to gratify it, or do nothing with the subject in the magnetic state.

We have elsewhere stated it as an abuse of Magnetism, for any one to attempt to induce the sleep, merely out of an idle curiosity. And the same is true when the attempt is made for mercenary purposes. It is an abuse of the person magnetized, to subject one to the control of those who do not believe in the reality of the magnetic sleep; and to such barbarities as cutting or pricking the flesh, severe galvanic shocks, and other cruelties, which no one would consent to endure for a moment, in the waking state. And, while upon this subject, we feel compelled to notice the complaints which have reached us of one, to whom an allusion was made in our last number, who has, for a year or more, not only abused this subject, but the public and the innocent persons also on whom he has publicly experimented. We should much prefer not to notice such an individual in any way, but we do not see how we can shut our eyes against the light which has been shed upon his character, from the various places he has visited. We have now before us, letters and affidavits of respectable persons, in which he is charged with conduct the most infamous. Indeed, we have just received a letter from a respectable female whom he had been in the habit of magnetizing, in Boston, in which she charges him with *deception, falsehood, profanity*, and an attempt to defraud her; and, also, with extreme *cruelty* towards her while in the magnetic state.

We do not see how we can avoid the responsibility which a knowledge of such abuses imposes upon us. To consent to have such conduct covered up, or to refuse to lift our voice against it, when it forms a trait in the character of one who assumes to be an *apostle* [?] of Magnetism, would be the way to blacken our favorite cause with unfading infamy. If truth suffer from the conduct of such persons, as it undoubtedly will, our skirts are clear. We have said enough, we hope, to put our friends upon their guard; and we mean this notice for other countries besides our own; for we have been given to understand that this same man is about to return to England, to practise similar impositions upon the people of that country.

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* Located directly below Self-Esteem.

Visions!—We have enjoyed abundant opportunities during the year past for being amused with the accounts which have reached us, from different persons and places, of discoveries which many suppose they have made, in connection with Human Magnetism. One imagines he has found an organ of *insanity* [! Why not an organ of head-ache?] Another whispers that he has found the organ of *Lying;* and a fourth is anticipated, who will doubtless find the organ of *Rheumatism*, or *Gout*, perhaps!

To be serious. There is one important discovery which these amateurs have not made; it is this,—that a person in the magnetic sleep is an instrument, on which almost any tune may be played; and without something else by which to be guided, you will follow an *ignis fatuus*, and find your discoveries have no foundation in reality except the vagaries of a perverted mind.

Here is an example. An intelligent gentleman informed us, with considerable self gratification, that he had, with "one of the best subjects," found the organ of *Prevision*, and it was located so and so. We said nothing. A few days after, we were present when his oracle gave us the following information—"Firmness was located below Self-Esteem, and Tune was where Time has been located;" and so of the other organs! Of course, such an oracle would be able to tell where the organ of *Prevision* was located, and if consulted, would tell you where to find the organ of *Head-ache!*

Caution.—We deem it proper to caution the public against believing many of the reports which are often put in circulation, about what may be said to have been produced in the magnetic sleep. Some of these stories, we know, will not bear examination. We supposed that we had explained ourselves sufficiently to give all to understand, that, though we have had some of the clearest demonstrations of what is called clairvoyance, yet we do not depend on these accounts that are said to have been given of the planets, and of the "expected European steamers," nor do we believe many of the marvelous stories told of this subject. Indeed, that strolling lecturer, who has published pretended "descriptions of the planets," has, as we know, in numerous instances, deceived the public with his eyes wide open, and reported things which neither he nor any other person ever saw, either asleep or awake. Nothing has done more to bring this subject into contempt, than these silly stories so often put in circulation, about what persons in the magnetic sleep are said to do. We think we know something about these wonders, and, as we value truth and the claims of science, we would caution the public against believing these stories of visits to the moon, and conversations in unknown tongues, and even with the spirits of the dead! No intelligent physician need be told, that in cases of morbid action of the brain, or when the nervous system is peculiarly excited, persons have been known to think they saw the spirits of the departed, and to converse with angels, &c. And such visions we have often produced in the minds of persons in the magnetic sleep. But before we can receive these accounts as sober realities, without any further evidence on which to rest our faith, than the mere representations of the persons put into this state, we should have to annihilate our own reason, and do violence to the standard by which God enables human intelligences to distinguish the vagaries of monomania from the legitimate deductions of unperverted reason.

We long ago saw the mischief which was threatened to science by these marvelous stories; and, indeed, this was one consideration that moved us in commencing the Magnet. And we would respectfully suggest to the friends of magnetism, whether duty does not require them to unite

their influence in elevating this subject above these embarrassments? We know very well, how easy it is to make persons of certain temperaments, see *any thing*, in the magnetic sleep. Nor do we doubt but the representations often given of invisible things, by somnipathists, may be exceedingly interesting to those who hear them. But we think we know, also, how it is that these phenomena are produced; and we do not hesitate to say, that it is in a manner which should make us exceedingly cautious how we depend on them, any further than our senses concur, in taking cognizance of the things described; and, above all, how we publish such accounts to the world, and then ask persons altogether uninformed on this subject, to believe what we say. Let this course be pursued, and we shall array the common sense, nay, the intelligence of the universe, not against a humbug merely, but against truth, and one of the most valuable and interesting departments of mental science.

Phreno-Magnetic Society.—It affords us pleasure to announce the formation of such a society by the amateurs of this science, in the queen city. The following letter gave us the first intelligence of its existence, and we hope to hear of similar associations in other parts of our country:—

Society Rooms, Cincinnati College, }
June 30, 1842. }

Sir,—I take pleasure in informing you, that at a meeting of the Phreno-Magnetic Society of Cincinnati, held in their rooms in the Cincinnati College, on the evening of the 29th inst., you were unanimously elected an Honorary Member of said Society.

Any information calculated to aid the society in their investigations, and which you may have it in your power to impart, will be most acceptable.

With sentiments of respectful consideration,
I subscribe myself, Yours, &c.
William R. Foster,
Rev. La Roy Sunderland. *Corresponding Sec'y.*

The Magnet.—We are, certainly, under peculiar obligations to our brethren of the press, for the favorable reception we have met with among them. That we did design to merit their good opinion, is true; but we must confess, that, when we considered the deep-rooted prejudice which has so extensively prevailed against one of the subjects for the investigation of which this work has been commenced, we did not anticipate the words of approval and encouragement which have reached us from every point of the compass.

We did not ask or expect the endorsement of any one for the views we might advance in this work; nor do we interpret the numerous favorable notices, which have been taken of it, as so many evidences of faith in the subjects we propose to investigate. Not at all. But they afford cheering evidence of a state of feeling in the public mind which is very favorable to that kind of investigation which is necessary to settle the claims of those subjects which come within the purview of our work. We think we see in the reception we have thus far met with, a disposition to know the truth,—a willingness to give an open ring and fair play to a subject as much misrepresented and abused as Magnetism has been hitherto.

It is hoped that the editor may not be unconscious of the many difficulties which must, necessarily, attend the proper management of this work. When it is considered, that the subject is comparatively new, and but little understood even among the best informed,—that the works on medicine, and other branches of science, afford but little or no light on Human Magnetism—and that about all we know, on this subject, has to be acquired by personai Investigation, by experiments which require much time, patience, expense, and study; and when, with these embarrassments, it is known that our investigations, up to the present, have been carried on in connection with the numerous duties of our profession, and the perplexity of supporting a newspaper office; we say, when these things are taken into the account, we hope that some apology may be found for the many imperfections of our work. For, certain we are, that if our readers could have a slight view of the many difficulties we have had to encounter, in searching for the light with which it has been our desire to illuminate these columns, we should share in their sympathy, at least, though we may not receive that support necessary to enable us to go forward in our labors.

MEDICINAL.

CASES.

In no country, perhaps, where Human Magnetism has become known, has its therapeutic benefits been so little sought after, and so poorly appreciated, as in our own. This may be accounted for, in part, by the manner in which this subject has been exhibited, from time to time, in different places. Where people have to depend upon public exhibitions of the magnetic sleep, and know nothing more of its use than what they see in experiments made for mercenary purposes, or to gratify an idle curiosity, we are not to expect them to place a very high estimate upon any practical benefits to be derived from Human Magnetism. We know, very well, that a large number of the most intelligent of the learned professions, in this country, are convinced of the truth of magnetism, and not a few of these classes have seen and tested the valuable benefits to be anticipated from its use, in the cure of disease, and the relief of human suffering. It is, nevertheless, true, that the great mass of those who believe in the reality of the magnetic sleep, seem to have no settled convictions as to the legitimate uses to which this agency should be devoted. They have heard of certain marvelous things said to have been done by lecturers, whose principal object has been to make money by the gratification of the marvelousness of the multitude; but they have no idea of the great benefits which this agency offers for the relief of suffering humanity. However, we rejoice in anticipation of the time, as near at hand, when physicians, and those whose Benevolence, Intelligence, and Health, qualify them for relieving the diseased, will take hold on this subject, and give to it such direction as will, at once, elevate it above the abuses to which it has too long been degraded, and use it as heaven's other gifts should be used, for the relief of human woe.

Did the limits of our work permit, we should gratify our readers with some accounts of the present state of the science, in France, Russia, Germany, and Prussia, countries where its practice has long been patronized by the learned, and especially by the medical profession.—The government of Prussia, in 1817, attempted to guard its practice by legislative enactments, prohibiting any but regularly authorized physicians from its use, and requiring them, when they did so, to report their proceedings quarterly, to the authorities of the state. The Society of Paris, from 1814 to 1820, published two periodicals, devoted, entirely, to the narrative of facts, and the diffusion of intelligence connected with this subject. In Prussia, and some other countries, we believe, Hospitals have been established for the sole purpose of treating the sick by use of magnetism. And a decree of the Medical College of Denmark, passed in 1815, and another in 1817,

imposed upon physicians the duty of reporting the results of their practice in the use of magnetism. Indeed, we have not the space necessary for any considerable proportion of the testimony which might be quoted, showing the estimate placed on magnetism, by the learned in other countries, as a medicinal agent. And, to deny it, as observed by Dr. Marc, before the Paris Academy of Medicine, (1825,) "to deny it, would be to suppose that men of the greatest merit, two learned bodies of the first respectability, and governments known for having surrounded themselves with the best physicians, must have, in various places, and at various periods of time, fallen dupes of miserable jugglers, and propagated, favored, and executed labors merely chimerical."

We have facts in abundance, and well authenticated, which go to show the therapeutic efficiency of Human Magnetism, without quoting from the numerous and large works, published in the French, German, and Prussian languages. We fear we shall scarcely be able to find room for an account of what we have seen and tested of this character. And we would gladly find a place for some of the cases stated by Dr. Poyen, and others, and by Mr. Hartshorn, in the notes to his translation of Deleuze; but, for the present, at least, we must confine ourselves to the statement of the following cases of our own, and for the truthfulness of which we are prepared to vouch. The names of the persons referred to, in each case, it is not necessary to give, but they can be known on application to the editor. In stating these cases we shall avoid all technicalities as much as possible, and merely give those particulars which may afford common readers a definite idea of the nature of the disease, and how the relief, or cure, has been effected.

1.—Inflammation.

Mrs. G. being present while we were operating on a patient, stated, that she had been bitten, three weeks before, in the instep of one of her feet, by some poisonous reptile, and during that time she had been scarcely able to walk. The place was much inflamed and quite painful.

On magnetizing the part affected, by simply passing the hand over it for about ten minutes, she declared it perfectly relieved from pain, and from that moment she was able to walk with that foot, without the least difficulty.

2.—Neuralgia.

Miss S. for some twenty years, had not been entirely free from pain in the head, and her sister informed us, that, at times, the pain was so great, that she became quite deranged in mind. We operated but once, and the patient declared herself more relieved than she had been for months, or even years, before.

3.—Inflammation of the Liver.

Mrs. B., No. 12 Vandam street. Her physician pronounced it a case of liver complaint, and said the left lung was much inflamed, great prostration of strength, and breathing quite difficult. On being magnetized about thirty minutes, she was perfectly relieved—breathed without the least difficulty, and sunk into what she described as a most delightful state of rest, which continued during the night. The next morning she arose and dressed herself, a thing she had not done for weeks before. She left immediately for the country, and has since been much better.

4.—Toothache.

We have afforded relief, and perfect cures, in so many cases of toothache, that we could not undertake to describe them. We shall state one, however, as it was somewhat remarkable. A patient whom we had magnetized frequently, complained of great pain from one of the molars, which was ulcerated, and much swollen. We put her to sleep, and directed her to forget that tooth on waking up, which she did, and three weeks afterwards, on being questioned, declared that she had not since suffered at all from that tooth, and had no recollection of the ulceration, till we mentioned the fact to her.

5.—Nervous.

Mrs. S. was exceedingly troubled with what she called "Nervous Complaints"—was easily frightened—could not sleep well—nervous headache, and was troubled with frightful dreams. Was greatly relieved on being magnetized a few times, and her sleep became quiet and refreshing.

6.—Paralysis.

We call the following a case of Paralysis, but there is evidently a complication of diseases. The liver, heart, stomach, and lungs appear to be quite diseased; but the relief afforded in this and the next case, stated below, seems to be so remarkable that we give the statements of the patients themselves:—

I have been quite indisposed for the last two years, during which time I am not aware that I have derived any material benefit from medical attendance. About five months since I was brought down with *paralysis* of the spine and lower limbs; since which time I *have not been able to walk at all*, nor even *to bear my weight upon my feet;* indeed, a part of this time my limbs have been so cramped up, that I have been unable to straighten them. Besides other diseases, I have been affected with a determination of blood to the head, and spasmodic hysteria, so that frequently my entire system has been thrown into convulsions, which have been exceedingly distressing. When Mr. Sunderland commenced magnetizing me, only one week since, I did not anticipate much, if any relief; but am now, with my friends, astonished at the effect it has produced on my system. Besides curing me of the spasms, my limbs have become straight, and I am now so far recovered, that *I am able to walk across my room.* My remarkable recovery, thus far, I can attribute to nothing but Magnetism, and I feel great pleasure in bearing this testimony to its unexpected and surprising effects in my case, in hopes that others who may be suffering from like maladies may be induced to give it a trial,

Caroline A. Wilkins,
72 Carmine-street.

New-York, July 6, 1842.

7.—Neuralgia.

I have been afflicted with Neuralgia for about three years. During this time my sufferings from extreme pain in the face have been more than it is in the power of language to describe. For months, I have been utterly unable to sleep at all except from the effects of morphine. Indeed, I may safely say, as all my family and friends know, that I have not been free from pain, and at times of the most

feet. To make them more conveniently, place yourself on your knees in front of the person you are magnetizing.

I think it proper to distinguish the passes that are made without touching, from those that are made with the touch, not only with the ends of the fingers, but with all the extent of the hand, employing at the same time a slight pressure. I give to these last the name of *magnetic frictions;* they are often made use of to act better upon the arms, the legs, and the back, along the vertebral column.

This manner of magnetizing by longitudinal passes, directing the fluid from the head to the extremities, without fixing upon any part in preference to others, is called *magnetizing by the long pass,* (magnetiser a grands courans.) It is more or less proper in all cases, and it is requisite to employ it in the first sitting, when there is no special reason for using any other. The fluid is thus distributed into all the organs, and it accumulates naturally in those which have need of it. Besides the passes made at a short distance, others are made, just before finishing, at the distance of two or three feet. They generally produce a calm, refreshing, and pleasurable sensation.

There is one more process by which it is very advantageous to terminate the sitting. It consists in placing one's self by the side of the patient, as he stands up, and, at the distance of a foot, making with both hands, one before the body and the other behind, seven or eight passes, commencing above the head and descending to the floor, along which the hands are spread apart. This process frees the head, re-establishes the equilibrium, and imparts strength.

When the magnetizer acts upon the patient, they are said *to be in communication,* (rapport.) That is to say, we mean by the word *communication,* a peculiar and induced condition, which causes the magnetizer to exert an influence upon the patient, there being between them a communication of the vital principle.

This communication is sometimes established very soon, and sometimes after a long trial. This depends upon the moral and physical conditions of the two individuals. It is rare not to have it established at the first sitting. Experienced magnetizers generally perceive it in themselves when this takes place.

When once the communication is well established, the action is renewed in the succeeding sittings, at the instant of beginning to magnetize. Then, if you wish to act upon the breast, the stomach, or the abdomen, there is no utility in touching, provided it is not found more convenient. Ordinarily, magnetism acts as well and even better in the interior of the body, at the distance of one or two inches, than by the touch. It is enough at the commencement of the sitting to take the thumbs a moment. Sometimes it is necessary to magnetize at the distance of several feet. Magnetism at a distance is more soothing, and some nervous persons cannot bear any other.

In making the passes it is unnecessary to employ any greater muscular force than what is required to lift the hand and prevent it from falling. The movements should be easy and not too rapid. A pass from the head to the feet may take about half a minute. The fingers ought to be a little separated from each other, and slightly bent, so that the ends of the fingers be directed towards the person magnetized.

It is by the ends of the fingers, and especially by the thumbs, that the fluid escapes with the most activity. For this reason it is, we take the thumbs of the patient in the first place, and hold them whenever we are at rest. This process generally suffices to establish the communication; to strengthen which there is also one other process. It consists in placing your ten fingers against those of the patient, so that the inside of your hands are brought near to the inside of his; and the fleshy part of your fingers touch the fleshy part of his, the nails being outwards. The fluid seems to flow less copiously from the back of the hands than from the inside; and this is one of the reasons for turning the hands in raising them, without carrying them off too far from the body.

The processes I have now indicated, are the most regular and advantageous for magnetism by the long pass, but it is far from being always proper, or even possible to employ them. When a man magnetizes a woman, even if it were his sister, it might not be proper to place himself before her in the manner described; and also when a patient is obliged to keep his bed, it would be impossible to make him sit, in order to sit in front of him.

In the first case, you can place yourself by the side of the person whom you wish to magnetize. First, take the thumbs, and, the better to establish the communication, place one hand upon the stomach, and the other upon the back, then lower the two hands opposite to each other, one down the back, and the other at a distance down the forepart of the body, one hand descending to the feet. You may magnetize the two arms, one after the other, with one hand only.

In case the patient cannot raise himself, take your station near his bed in the most convenient manner; take his thumbs, make several passes along the arms, and, if he can support himself upright, several along the back; then, not to fatigue yourself, use only one hand, placing it upon the stomach, and making longitudinal passes, at first slightly touching through the clothes, then at a distance. You can hold one hand fixed upon the knees or upon the feet, while the other is in motion. Finish by passes along the legs, and by transversal passes before the head, the breast, and the stomach, to scatter the superabundant fluid. When the communication is established, one can magnetize very well by placing himself at the foot of the patient's bed, and in front of him; then directing at that distance both hands from the head to the feet, dashing them aside after each pass so as not to conduct the fluid to himself. I have produced somnambulism by this process, without establishing the communication by touching.

This is what I have to say about magnetism by the long pass, with which it is always proper to commence, and to which a person may confine himself until he has a reason for employing other processes.

Let us now consider the circumstances which point out particular processes.

When any one has a local pain, it is natural, after establishing a communication, to carry the magnetic action to the suffering part. It is not by passing the hands over the arms that we undertake to cure a sciatic; it is not by putting the hand upon the stomach that we can dissipate a pain in the knee. Here are some principles to guide us.

The magnetic fluid, when motion is given to it, draws along with it the blood, the humors, and the cause of the complaint. For example, if one had the headache, owing to the tendency of the blood to the head, if the forehead be hot and the feet very cold, by making a few passes from the head to the feet, and others along the legs, the head is relieved and the feet become warm. If one has a pain in

the shoulder, and the magnetizer makes passes from the shoulder to the end of the fingers, the pain will descend with the hand: it stops sometimes at the elbow, or at the wrist, and goes off by the hands, in which a slight perspiration is perceived; before it is entirely dissipated, a pain is sometimes felt in the lower part of the bowels. Magnetism seems to chase away and bear off with it what disturbs the equilibrium, and its action ceases when the equilibrium is restored. It is useless to search out the causes of these facts, it is sufficient that experience has established them, for us to conduct ourselves accordingly, when we have no reason to do otherwise.

The following rules, with some exceptions, may thence be established:—

Accumulate and concentrate the magnetic fluid upon the suffering part; then draw off the pain towards the extremities.

For example, do you desire to cure a pain in the shoulder? hold your hand upon the shoulder for several minutes, then descend, and, after having quitted the ends of the fingers, recommence patiently the same process. Would you cure a pain in the stomach, place your hands several minutes upon the stomach, and descend to the knees. You will accumulate the fluid by holding your hands still; by bringing them down, you will draw away both the fluid and the pain at the same time.

If your patient be troubled with an obstruction, place your hand upon the seat of it, leave it there for some time, either immovable or making a circular motion, and draw it along towards the extremities. If the obstruction does not occupy a great space, present your fingers near without uniting them, because it is principally by the points that the fluid escapes. Turn them aside when you bring them away, and then wave them towards the extremities. You may be assured that the motions you make externally, will operate sympathetically in the interior of the patient's body, wherever you have sent the fluid into it.

If any one has received a blow behind the head, producing a contusion, take the head between your two hands, conveying the action of your will to the seat of the injury. Then bring your hand down along the back, if the contusion is behind the head; or down the forepart of the body to the knees, if it is in the front of it; or along the arm, if it is on the side. You will thus prevent the blood from tending to the head, you will avoid the danger of inflammation, and probably render bleeding unnecessary. If you wish to cure a burn, chilblains, or a felon, follow the same process. The examples I have just cited may be applied to most cases. I think that, in general, contact is useful to concentrate the action, and that passes at a short distance are preferable for establishing and maintaining the magnetic currents. Magnetic frictions are employed with advantage in pains of the limbs.

In the headache, if the pain is very great, and if there be heat, after having placed your hands upon the head for some time, withdraw them as if you believed the fluid you have introduced to be united to that of the patient, that the mingled fluid stuck to your hands, and that in separating your hands and shaking your fingers, you could draw it off again: it is, in effect, what you will see verified. If the headache proceed from the stomach, this process alone will not succeed; it will be necessary to act upon the stomach. If the blood tends to the head, it will be requisite, as I have said, to draw it down, and repeat the passes over the legs and over the feet.

I have said that the fingers brought near and pointed towards the part, act more powerfully, and concentrate the fluid better than the extended hand. There is one other process, the action of which is much stronger, and which may be employed with success for local pains and for obstructions.

Place a piece of linen several times folded, or a fragment of woollen cloth, upon the suffering part; apply the mouth above it, and breathe through it: it excites a lively sensation of heat; and the breath, which is charged with the magnetic fluid, introduces it into the system. It is also observed that the heat is not merely at the surface, as that of hot iron would be, but it penetrates into the interior. After having employed this process, make the usual passes to draw off and expel the pain.

Blowing cold air from the mouth at a distance, produces a refreshing effect. It helps to dissipate the heat, which is withdrawn by presenting the fingers, taking care to separate them as you draw them off, in the usual manner.

The head may also be cooled by putting the palm of the hands upon it, and holding the fingers elevated and separate; the fluid passes off at the ends of the fingers.

It is often impossible to draw a pain far from the part where it is fixed; and you will succeed solely by driving it off progressively, by little and little. A pain upon the top of the head, will be lessened at first in the centre, by waving the hands downward and outward, on the right and left. At every pass a portion will be dislodged and carried off. It will take more or less time to dissipate it entirely.

I will not here relate the details given by Mr. Kluge, Professor in the Medical School of Berlin upon the various kinds of manipulation.* What has been said suffices to indicate the processes that may be employed when no sensible effect has been produced. I will merely add, that the action is more lively and penetrating by the digital manipulation; that is, when one presents the end of the fingers, than when he presents the hands open and the fingers straight, so as to have the fluid pass from all the interior surface. Manipulation with the open hand at a distance, is a process generally used to soothe; it is often sufficient to appease the sharpest pains. The fingers, united to a point, concentrate the action upon the part towards which they are directed.

I am now going to recapitulate, in few words, what I have said upon magnetism with the long pass, by indicating the processes which are the most convenient at the commencement, during, and at the termination of the sitting.

1st. Establish the communication by holding the thumbs, placing the hands upon the shoulders, and making passes along the arms with a slight pressure, and placing the hands upon the stomach.

2d. Direct the current from the head to the feet, or, at least, to the knees. Touching is useless.

3d. Make passes, or else magnetic frictions along the legs to the extremity of the feet; soothe the patient by several passes at a distance with the open hand; and, finally, throw off the superabundant fluid by a few transversal passes. The first sittings ought to be about an hour in duration, when there is no reason to prolong or to abridge them. I say the *first* sittings, because a part of the time is consumed in establishing the communication. As soon as that has been once well established, the action of magnetism is manifested at the first moment; then a sitting of half an hour or three quarters, provided the

* In the German work, entitled "*Animal Magnetism as a curative means.*" Vienna, 1815.

labor commenced is duly sustained, will be sufficient.

It is necessary to order the treatment in the most uniform and regular manner possible. The sittings must be periodical, and equal in duration; the magnetizer must be calm and self-collected; all foreign influence must be banished; all curious persons excluded, and also every other witness except the one chosen at first. There must be a similar degree of magnetic power exerted at each sitting, and the mode of procedure first adopted must be continued. Nevertheless when the patient experiences sensations, these often determine the operator to vary or to modify the processes. This, then, is the place to speak of these effects, and of the indications they afford of the manner of proceeding.*

Before entering upon the details, I think it important to combat an opinion which appears to me entirely erroneous, although it is maintained by men well versed in the knowledge of magnetism; viz. that the processes are in themselves *indifferent;* that they serve only to fix the attention, and that the will alone does all. People have been led to adopt this idea at the sight of a phenomenon which some somnambulists present, and by the application of a particular case to a general theory.

There are some somnambulists perfectly concentrated, whose interior faculties are so energetic as to act upon themselves by their own power, and conformably to the will communicated to them by their magnetizer. The magnetizer causes a head-ache, or a side-ache, to cease, simply because he *wills* it. There are likewise men endowed with such magnetic power, that they can act upon patients who are very susceptible and in perfect communication with them, while directing the action upon this or that part, by the thought and by the look; but these cases are extremely rare, and no conclusions can be drawn from them for ordinary practice.

The processes *are* nothing if they are not in unison with a determined intention. We may even say they are not the *cause* of the magnetic action; but it is indisputable that they are necessary for directing and concentrating, and that they ought to be varied according to the end one has in view.

Somnambulists point out for themselves processes altogether different, according to the seat of the disease; and when they advise a patient to have recourse to magnetism, they take great care to prescribe to him the processes he ought to employ. It is certain, that by proper processes, and not by the will only, one is able to displace a pain, to make it descend, to accelerate the circulation of the blood, to dissipate an obstruction, and to restore the equilibrium. There are cases when one does much good by placing his hands upon the knees, though he would do much injury by holding them long upon the stomach. Numbness, heaviness, disagreeable sensations, are produced by charging the head too much. It is often essential to spread out the magnetism at the close of a sitting, and to withdraw the fluid by the extremities, in order to relieve him who is overcharged with it.

When I said that a method different from mine might succeed equally well, I intended to say that each one might modify the processes according to his own views and practice; but not that he could omit them, or employ them in a manner contrary to the general rules. For example, various magnetizers act equally well by passes, more gentle or more rapid; by contact, or at a distance; by holding the hands to the same place, or by establishing currents. But it is absurd to believe one can cure chilblains on the feet, by placing the hands on the breast.

There are some general processes that are employed at the commencement;—there are others that are suggested by circumstances, or by the effects first produced.

We do not agree with all the views set forth in the foregoing extracts, but the directions are, on the whole, so good, that we think them worthy of a place in our work.

* Many magnetizers experience sensations which ought of necessity to govern them in the choice of processes. But as this precious faculty is not common to all, I shall in another chapter speak of the means of developing it in ourselves, and of the advantages arising from it.

PHYSIOLOGY.

For the Magnet.

EFFECTS OF TIGHT DRESS.

Each organ of the body has a distinct office to perform; and when they all perform their duty, it may be said we are in health; and when any organ is not fulfilling the original intention, debility and disease is the result.

The lungs are situated in the upper cavity of the trunk, called the chest, one on the right, the other on the left, and are divided into lobes or separate apartments. The right lung has three lobes, the left but two. They have blood-vessels, air cells, and nerves, and these air cells are the fine branches of the wind pipe, and when spread out on a surface, they occupy 20,000 square inches. If they are thus extensive, surely we cannot suppose, when cramped to the size of a fashionable lady's waist, they can healthily perform their important office, which is to supply atmospheric air, for the purpose of purifying the impure blood, constantly made in our systems. It is necessary, to give health to the lungs, that the body should be well nourished, in order to form good blood; it is also necessary we should breathe pure air, and likewise that the lungs should not be encroached on by tight dress, in any form.

The blood vessels of the lungs are termed the Bronchital vessels, and when in a state of inflammation, they cause Bronchitis, or that disease so fashionable among public speakers, caused in most cases by improper diet, condiments, hot drinks, hot food, &c., and not by speaking, as is generally supposed, for, I believe, if the lungs and throat are not abused, they are capable of all necessary labor.

The lungs are formed of separate lobes; one may be diseased and indurated or hardened, so as to be incapable of use, while the others may be unaffected, or capable of performing their offices. The lower lobes are most liable to injury from tight dress, and are oftenest diseased. I have had lamentable proof of this, having seen in females not numbering twenty summers, lungs so perfectly diseased, ulcerated, and cramped, that on dissection, it was impossible to remove them without leaving a portion of them sticking to the ribs. I have some of these lungs preserved in spirits, for the inspection of those who feel anxious to see them.

A celebrated Professor, when writing on this subject, prepared several engravings, to show the position of these organs, and the protection nature has given to them in the ribs; but he has also shown, when the subject is young, and the bones tender, these may be compressed till nature cannot be identified in her own work. These I subjoin, with their explanations:—

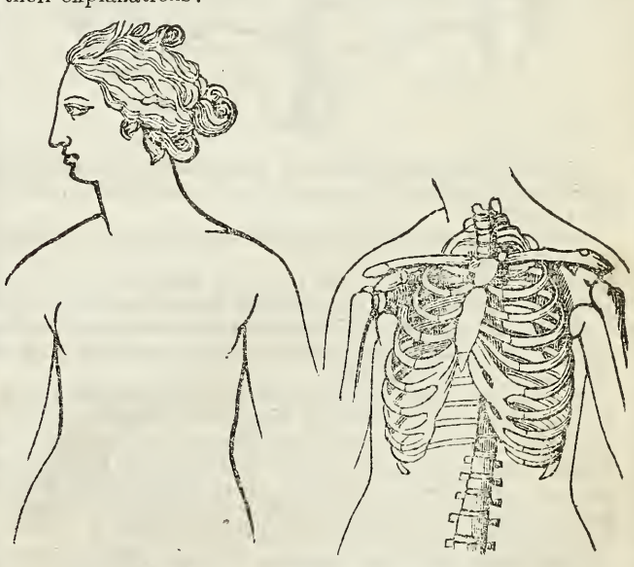


Fig. 1. Fig. 2.

NATURAL SIZE.

Fig. 1, is an outline of the famous statue of the Venus de Medici, and may be considered as the *beau ideal* of a fine female figure.

Fig. 2, is the skeleton of a similar figure, with the bones in their natural position.

Fig. 3, is an outline of the figure of a modern "boarding school Miss," after it has been permanently remodeled by stays.

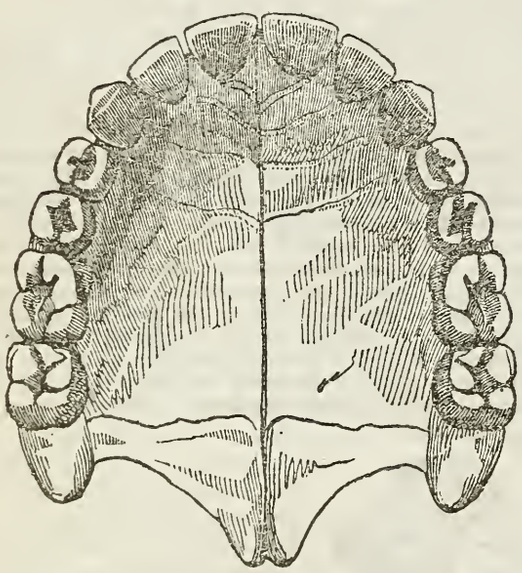
Fig. 4, is the skeleton belonging to such a figure as No. 3.

Fig. 3. Fig. 4.

UNNATURAL SIZE.

"And God said to all the creatures he had made, to bring forth after their kind, and replenish the earth."

Suppose the third figure should bring forth after her kind or shape, would she be pleased with the result?



The teeth and upper jaw, here represented, is taken from the offspring of one corresponding with the figure, marked No. 1 and 2.

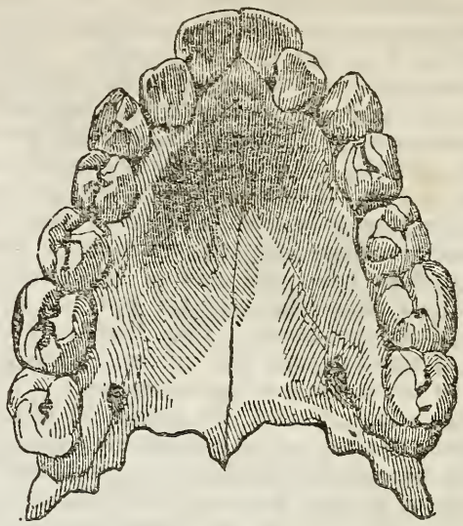
We here see the original intention fulfilled, in the regularity of the teeth.

The second drawing of the teeth, is taken from the offspring of one corresponding with the figure, marked 3 and 4.

When a bone is out of place, the philanthropist is called upon by his sympathies, and the moral organs, to set it in its natural or proper place.

The Author of our frame knew what he was about when he made man, and we should suppose he would have made all parts to correspond and harmonize with each other; but we find some persons who appear to think that God has increased in knowledge, and if he was to make another human pair, he would alter the proportions, and make them, in some measure, as he has the wasp and bee.

Now, these benevolent persons, who are said to glorify God with their bodies and spirits, (as they suppose,) are setting up schools or shops to instruct the rising generation how to appear when they walk, and to keep the hands folded



in front of their persons, and to stand like a post, incapable of bending. For this purpose they have contrived a chest-board, made of wood or steel, to put in front, to extend from between the nipples to some distance down on the stomach and bowels. In order to keep this sword in its place, it is necessary to have what is called a corset or jacket, made in a fashionable shape, more or less filled with whalebone, (procured by our whaling boys, near the poles,) and on the back part of the jacket are holes lined with metal, so that the mold shall not break when they are adjusting the sword in front, and drawing the strings behind, so as to make a good cast or impression. In doing this, it is necessary, in some cases, to have one or more assistants, who strain and work in order to get the harness on. About five hundred thousand dollars worth of them are sold annually in this city.

It is supposed that more money is spent in Christendom for these things, than is spent in all the heathen world in manufacturing idols and images, which are worshiped as a type of the invisible God. They leave the body in its natural shape, with the exception of a few of the Chinese, who cramp the feet; and also a tribe of Indians, called the Flat Heads, who do the same at the other end.

The Hindoo mother throws her child into the river Ganges, and if it happens to swim towards the shore, she says, "My dear, I want you to go to a place of happiness;" and then puts a stick on its head, so that it may go on its journey to the world of spirits.

I would warn young men who intend to marry, and obey the command, to "multiply and replenish the earth," with a healthy race, to act as intelligent beings, and select wives who are capable of bearing healthy children. In doing this, look at the shoulders and waist, and see if the proportions correspond; if they do not, then reject their company as beneath an intelligent being's notice. I would say, for your particular advantage, as well as the good of the species, that all the young of the mammiferous animals, commence their growth in connection with the mother, and are supported from the arterial blood, which must have received its quality, through the lungs, by the atmosphere. If the lungs are diseased or contracted, the offspring will partake of the same. Suppose the lungs can take in only three fourths as much of the atmosphere as is necessary, the blood will only be three fourths arterialized; this blood would go to form the offspring, which can only give it three fourths of a good constitution; let the offspring compress or destroy one quarter more of the original, and it would have only one half of a good constitution, therefore, it would only live one half the time it ought to; and the next generation would not, in all probability, survive childhood, provided they followed the same course.

Now, who is the most to blame, the Hindoo mother, who throws her child into the river, and ends its existence in a few moments; or the christian mother, who kills or destroys the image of God, as described above, by so long and tedious a process? And ten chances to one she will say, "The Lord has seen fit to take my child away." If so, he has done it because you were incapable of keeping it yourself. You are only reaping the fruit which has been sown by you, or your ancestors.

JOHN BURDELL.

New York, June 29, 1842.

GALVANIZED IRON.—A Mr. George Johnson, formerly free merchant of Calcutta, has published a pamphlet explanatory of the valuable and interesting process of rendering iron and steel proof against the ravages of rust.

PHRENOLOGY.

COMPARATIVE ANATOMY.

It has been suggested to us, that many of our readers may not be familiar with those facts which go to demonstrate the truth of Phrenology, aside from our discoveries, described in the first number of the Magnet. To such we commend the following article from the South Western Christian Advocate. And, we must congratulate the friends of science on the appearance of such an article in the columns of that paper,—one of a class which has, heretofore, done not a little in opposition to the claims of Phrenology:—

Man has, by general acclamation, been placed at the head of the animal creation; and it is in him we find that beautiful and complicated mechanism which conduces so much to the perfection of life. As the inferior orders of creation descend in the scale of animated nature, becoming more remote from the formation of man, we find them gradually losing their perceptive excellence, their instinctive intuition; and the long line of locomotive being is at last merged in the inertia of vegetable existence.

Were it really necessary, we might *speculate* on the probable and apparent *causes* of the gradual declination in the scale of animal being; nor would such speculations be wholly irrelevant to the subject in hand. But a few plain, simple *facts* will set the matter in a clear view.

The whole animal kingdom has been divided into six great classes, and the distinguishing characteristics of each class drawn from the peculiarities of the *internal structure.* This classification is quite illustrative of our present design: and our object in calling attention to it is, to show that the gradual improvement of the animal race throughout its rising gradations, is dependent, for the most part, upon the concomitant development of one single system, the nervous, of which the brain is the very centre.

The first class to which we invite attention is Vermes or Worms. These have a heart with *one ventricle*, but *no auricle;* the blood is cold and white, and, the organs being very few and exceedingly simple, the phenomena of life have but little variety.

The second is Insecta, or Insects. These have a heart precisely like the first; and the composition and color of the blood the same. They differ from the first class in having antennæ, or feelers.

Pisces, or Fishes, constitute the third class. Here the heart is a little different. In addition to the ventricle, the heart has an auricle. The blood is red and cold, and the bronchæ, or gills, are external.

In the fourth class, Amphibiæ, or animals that can live in two elements, the heart is very similar to that of the third; the lungs, however, are internal, and respiration is nearly voluntary.

The fifth class, Aves, or Birds. Here the heart has *two* ventricles and *two* auricles. The blood is red and warm, and its circulation is carried on through the pulmonary structure, by means of the right ventricle and auricle of the heart, while the left ventricle and auricle of the same organ propel the general or systematic circulation. It is only in this last class we find any considerable development of the *cerebral* organs, and accordingly *instinct* is here observed in great perfection. But, like the inferior classes, it is oviparous.

The sixth and last class is the Mammalia. This embraces all those animals that are viviparous. Here the organization is comparatively perfect, the organs of the body numerous, and the phenomena of life exceedingly complex and multiform. The volume of the brain is astonishingly increased in proportion to the size of the animal, and the nerves emanating from it are more distinct, their destinations more marked, and their offices more apparent.

According to Linnæus, man forms the first genus of the first order of the last class. The simia, or ape, constitutes the second genus of the same order and same class. Now, where the varieties of these two genera approach each other, they are absolutely so nearly blended, and even mixed together, as to present no striking difference. For we are really informed that, in Sumatra, an island inhabited by a most degraded species of the human race, and where, also, the satyrus, or ourang outang, is found in great perfection, the two have, on some occasions, abolished the generic differences which nature seems to have placed between them, and, by consanguinity, have resolved themselves into *species* of the *same variety.* The chimpanzee, or simia troglodytes, is said to resemble the human race even more than the satyrus, or wild man, as he is called. But this last variety approaches near enough to convince every one of his superior endowments over his less symmetrical brethren. It is said the inhabitants of the Ganges live in great fear of these animals, and regard them as a foreign nation, who do not speak for fear of being made to work. They frequently present sticks to travelers, and compel them to fight. Picard informs us, that, in the province of Sierra Leone, there is a species so strong-limbed and industrious, that, when properly trained and fed, they work like servants; that they walk on the hind feet, will pound substances in a mortar, bring water; and Shoutten remarks, they are taken in snares, and taught to use their fore feet as hands in performing different operations, as rinsing glasses, carrying drink round the company, turning a spit, &c.

Gaut says he saw a very extraordinary ape in Java. It was a female, and very much resembled the Hottentots at the Cape of Good Hope. She made her bed very neatly every day, lay on her side, and covered herself with the bed clothes.—When her head ached, she bound it up with a handkerchief, and exhibited many other performances which he says were extremely singular. Wadstram mentions one that ate, drank, slept, and sat at table, like a human being.

We have taken the liberty to make this apparent digression for the purpose of showing conclusively, that as animals approach the human form, they improve rapidly in the variety and perfection of their faculties; and what is undeniable, that change of structure consists in nothing so much as in the shape of the head, and, as a matter of course, in the configuration of the brain. We might inquire, What particular organization is invariably connected with the development of mind? Is it in any modification of the structure of the lungs? We are sure it is not. Is it resident in any of the tissues of the body, aside from the nervous? we answer, no. Does it consist in any conformation of the heart, or any other portion of the circulatory system? We are convinced it does not: for the heart of a goose, for example, is very like the human heart; but how astonishingly different is the brain! It must be evident to every one, then, that a structure so uniformly connected with mind as that of a large and well shaped brain, must of necessity have something to do with it; for one unvarying cerebral structure is always found where the least trace of reason is observed.

It is a fact, that every part of the human system is so nearly similated by the same organs of the inferior animals, that the anatomy of man may be advantageously studied by means of these alone. But the brain is merely *resembled*, not completely represented, by that of any other creature; and that resemblance consists much less in the external figure

of the brain, than in its internal construction. It will be conceded, however, we think, by all, that the perfection of the simious animals, is in the circumstance of their resemblance to man, and the superior size of the head, together with the consequent development of the other portion of the nervous system, is the main source of that perfection.

But, to lay aside all semblance of speculation on this subject, to what extent does our own observation extend? Have we not been accustomed to associate great intellectual strength with a large brain, with as much propriety as strong and well developed muscles with a wrestler? And who ever saw a natural idiot whose head, unless it was dropsical, did not, by the precipitate recession of the fore part, the general diminution of the size, or irregularity of the shape, at once display the character of the individual? More than two thousand years ago, men were aware of the vast influence exerted on the intellect by the configuration of the brain. Accordingly, we find the ancients constructed the statues of Jupiter, their supreme god, with a forehead so prominent as to occasion a slight deformity. And we recollect to have heard a popular minister remark, that he had actually recognized the most able and talented of our senators in Congress from the size and figure of the head alone.

But there is another view we may take of this subject, if possible, still more conclusive and unanswerable. Wherever the seat of the intellect is in man, whatever organ *is* the instrument or medium of its conveyance, that part will necessarily present numerous morbid appearances in MANIA. Now, what part of the body, what organ of the whole system, invariably shews change of structure, and real disease, in derangement of the mind? We answer, without the least hesitation, the brain. It is true, madness has been ascribed to disease of the liver, and this opinion was advanced as early as the days of Hippocrates. But the fact is, numerous persons have beeen deranged in whose liver not the slightest original disease could be observed; and, on the contrary, in inflammations and abcesses of the liver, no mental aberration is present, unless through sympathy of the brain. Mania has been referred to the spleen, to the intestines, to the nerves apart from the brain. But the most unwearied anatomical investigations, have never confirmed either of these opinions, but the contrary.—There have been some who have placed it exclusively in the mind. But there are equally weighty objections to this hypothesis. For we cannot understand how impressions can be made on the mind except through the medium of matter; and again, the brain is uniformly affected in persons who have died in a state of insanity. It is a fact which cannot be denied, that phrenitis, apoplexy, palsy, epilepsy, &c., which have their seats, in a great degree, in the brain, are the frequent cause of madness, and perhaps produce more instances of this disease than all things besides.

Can we hesitate, then, when we see the full development and healthy action of an organ so essentially connected with the display of mind; and again, when that organ is diseased, its structure changed, that same mind languishing in gloom and descending into driveling maniacy,—can we hesitate to assign to it the grand, the noble function of being the medium through which the sublime phenomena of mind are displayed?

But we are gravely told that the testimony of the Bible is in favor of placing the point of union between mind and matter in the heart! We are very far from undervaluing the authority of the Scriptures; yet we feel assured that vague and incorrect notions of certain passages have done much to retard the progress of literature.

We should be very cautious in quoting the Bible for authority in the support of any philosophical theory, as it rarely throws any light upon merely scientific subjects. One of the passages of Scripture relied upon to prove the heart to be the seat of the mind, is the following: "And God saw that the wickedness of man was great in the earth, and that every imagination of the thoughts of his *heart* was only evil continually." We cannot say what Greek word in the original, has been translated "heart," as a copy of the Septuagint is not at hand; but we think it might be "kardia," perhaps "kear," or even "hetor." Now, either of these words, without the least violation, could have been rendered, "mind." Then it would have read, every imagination of the thoughts of the *mind, &c.* But admit, for the sake of argument, it really and properly means the *heart*, let us observe the very next verse: "and it repented the Lord that he had made man on the earth, and it grieved him at his *heart*." Now, who does not see the imbecility of ascribing a fleshly heart to God? The truth is, nothing can be more conclusive that it should have an *immaterial* signification; and beyond the shadow of a doubt does signify the mind, or it never could have had a proper application to the spiritual God.

LITERARY NOTICES.

SKETCHES OF BUCHANAN'S DISCOVERIES IN NEUROLOGY.—Louisville. J. Eliot & Co., 1842. 12 mo. pp. 120.

Dr. Buchanan will please accept our thanks for the copy of his work he had the kindness to forward us. We have read it with great interest, and suppose he will expect from us a few remarks, at least, expressive of the reflections which its perusal has suggested.

We have read it through, expecting, of course, to find some account of his *modus operandi*, in conducting the experiments to which we alluded in our first number, but we are sorry to say, we have been disappointed. Indeed we cannot resist the conviction, which an examination of this work has forced upon us, that Dr. Buchanan, himself, is not acquainted with the precise nature of that agency by which he has been enabled to excite and operate on the cerebral organs.* The matter in this work is made up, principally, of the various newspaper articles which had been previously published, giving accounts of his experiments. From different statements found in them, it appears, that Dr. B. has excited the cerebral organs, by the application of his hand, or fingers, to the head of the patient, the very process by which we have, from the beginning, operated on the mental and physical organs both, in the magnetic sleep, and, also, when the patient was awake.

Now when it is known, that Dr. B. excites the organs of *certain* persons by the application of his fingers to particular parts of the head, every person, at all familiar with the subject of Human Magnetism, will see, at once, to what he is indebted for the discoveries described in this book, and they will be no less surprised than ourselves, that Dr. B. should not seem to be aware of this fact; and

* Since the above was in type, we have been told, that Dr. B. dips his fingers in alcohol, before applying them to the brain. That the application of alcohol to the head excites the brain, is well known; and if this is the way in which Dr. B. has produced the excitement of the organs, our experiments are, certainly, more remarkable than his, inasmuch as we have excited the organs of persons in the waking state, simply by applying the fingers to them, without any other means.

still more, that he should attempt to present this subject under a new name, as though he had actually discovered an agency by which to operate on the human system, hitherto totally unknown. Speaking of the experiments and the agency by which they had been first performed, Dr. Buchanan says:—

"You perceive that an *agent has been added* to our therapeutic list, of extraordinary, and, as yet, incalculable power."

And, to show that Dr. Buchanan is either unacquainted with the subject of Human Magnetism, or unwilling to yield it any credit for what it has enabled him to do, we ask the reader's attention to a few extracts from this work. Throughout its pages, there would seem to be a cloud of mystery hanging over his details, and but for similar discoveries of our own, we are confident we never could have conjectured from the book before us, anything definite or tangible, as to what was meant by "Discoveries in *Neurology*." Nor can we persuade ourselves, that the readers of this book will not be generally misled, by the representations which will be found in it, with regard to the *agency* by which Dr. B. produces his excitements of the cerebral organs. We confess that we had been so often assured that Dr. B. *disclaimed* all knowledge or use of Magnetism in his experiments, that we could scarcely believe he ever had anything to do with that subject. And, on looking over the pages of this work, the reader will see by what means a wrong impression can but be made upon the minds of such as know no better. For instance, Dr. Buchanan, says:—

"I determined to ascertain the functions of the brain in some simple and direct manner. To do this, I determined to excite the different portions of the brain by a *galvanic*, or *galvanoid fluid*, and, calling them separately into action, to watch the resultant phenomena; or, by exciting them in myself, to enjoy, at once, a perfect consciousness of the nature of each faculty and its organ. *In this attempt* I have met with even a more glorious success than I had ever anticipated."

Now, who would have *suspected*, from this statement, that this "*galvanic fluid*," here spoken of, was the very thing every where known and understood by the term Animal or Human Magnetism?

Indeed, it is too plain to be denied, that Dr. Buchanan either does not know what Human Magnetism is, or, if he does, he is desirous of making it appear that he has not made use of this agency in his experiments.

The agency which he speaks of his having "added to our therapeutic list," was known and employed in the cure of disease thousands of years ago! If it be said that he did not mean Magnetism, then it must follow that Dr. B. does not know what Human Magnetism is, and to suppose this of one who assumes to have made the discoveries in the nervous system claimed by Dr. B., is to suppose him more ignorant of the subject on which he has written, than any physician ought to be.

The following is from the Doctor's book, page 55:—

"Dr. Buchanan does not pretend that this was the *Mesmeric* sleep; for we have never heard that he has, as yet, attempted any thing in the line of what is strictly known as Mesmerism, or Animal Magnetism."

It is natural enough to ask, how Dr. B. could publish this of himself, when he *should* have known (if he did not) that every one of his experiments, described in this book, were performed by what has been known under the name of *Mesmerism?*

Here is another disclaimer:—

"*Mesmerism*, with its mysterious manipulations, its passes, its clairvoyant conditions, its magnetic states and transmissions of mental power and ubiquity, all operating independent of contact, no more resembles the science of Neurology, as defined and exemplified by Dr. Buchanan, than the practice of the *faith doctors* does the regular practice of medicine."

And, to the foregoing we might add the extracts from Dr. Buchanan's letter to us, in which he disclaimed Magnetism, and expressed an earnest desire to have a marked distinction made between his experiments and Animal Magnetism, to which he confesses they bear some *resemblance*.

From these repeated disclaimers on the part of Dr. B., the only conclusion we can form, consistently with his honesty, is, that he has but little, if any knowledge of Magnetism, and, consequently, he cannot be sufficiently familiar with the nervous system to justify all his assumptions with regard to what he calls discoveries in *Neurology*. And of this fact we think his book affords some conclusive evidence. For instance, on page 68, he says:—

"The *nervous system* is the seat of life, and the CONTROLLER of *all* the functions of the body. The whole science of Physiology is simply an exposition of these functions in the body, which are put in play, and carried on *by the nervous system*."

Indeed! And why don't the nervous system *control* the functions of the body after death? The nervous system is not destroyed by death; as far as we know, it remains, in many cases, at least, precisely the same immediately after death as before. And does any intelligent physician need to be told, that the nervous system, in itself, has no "control over the functions of the body," and that it is merely the medium through which the mind receives impressions, and acts upon the body? And do Dr. Buchanan's *discoveries* disprove this fact? And shall we yield to him the high claim he sets forth in the following terms?—

"*Such* has been my progress, [in discovering the functions of the nervous system] that but few important principles have been *left for future discovery*"!!!

To say the least of it, this is a most EXTRAORDINARY claim. It would seem, that the doctor *thought* he had gone over all the ground to be investigated, and that he had *actually* possessed himself of everything which was to be found within the entire range of the principles embraced in the science of Human Life! And hence it is, that he assumes that what he calls *Neurology*, "includes *all* the phenomena of mind and body."

Although we are perfectly willing that Dr. B., or any one else, should use this or any other term for a justifiable purpose, yet we are by no means inclined to adopt the use which is made of it in this book; nor do we believe that any portion of the scientific world will sanction the use which is here made of it. *Neurology* no more includes the entire science of Human Life than the term *Physiology*, nor, indeed, is it so comprehensive as the latter term, because the latter includes what is meant by the former. And, while we freely yield to Dr. B. all that he can justly claim for his discoveries, we cannot consent to his monopolizing all that is included in Human Magnetism, as though *he* had "added" this agency "to our therapeutic list;" and this, too, while he disclaims all use of this agency; nor will millions of others all over the world, who are familiar with Human Magnetism, consent to such a claim from any man. And we know very well, that they, with us, will agree, if they shall ever read this book, that, if Dr. B. has discovered what he affirms, he is indebted for his knowledge to the agency of Magnetism. And, if he himself yet has this discovery to make, he may rest assured, that there is yet one "important principle" left for him to find out, and one a thousand times more important than anything he has included in "Discoveries in Neurology."

Although Dr. B. has not, as we think, given any credit to Magnetism, for the assistance it has afforded him in his experiments, yet we will not, on this account, withhold from him the credit of what he has actually done towards demonstrating the truth of both Human Magnetism and Phrenology. His experiments are full of interest, and, as far as

we know, were the first of the kind ever performed by the use of alcohol. Ours were the first, probably, ever performed on patients merely by *magnetic* influence. And, it is a remarkable fact, that while ours were commenced by *suppressing* the action of the cerebral organs, Dr. B.'s were commenced by *exciting* them!

And, we have another fact which will surprise Dr. B. probably. He assumes that "the brain governs and sustains every corporeal and every mental function." But we have, often, by the mere touch of our finger upon the *face*, produced motion in the breast, lungs, liver, stomach, &c., and by touching the limbs we have produced motion in the various muscles, and can cause a movement not merely of the hand and arm, but also of each finger, or of one joint, even! Can Dr. B., by putting his hand on the patient's head, for instance, cause any proposed motion in the hand or fingers, without moving the arm? This we have done. Does Dr. Buchanan's "Neurology" afford any solution of these phenomena?

Indeed, Dr. B. seems to have had no idea of some of the most important facts demonstrated, as we think, by our experiments; such, for instance, as the poles, or *sympathetic points* of the entire human system; yet, in many important respects, the results of the experiments described in this work, perfectly agree with our own; and they prove, beyond all doubt or cavil, the truth of Phrenology and Human Magnetism.

COLLATERAL SCIENCE.

GEOLOGY.

By Prof. Hitchcock.

The Science of Geology furnishes facts of a most wonderful nature. It is found that the constituents of substances at the tops of the highest mountains have once been at the bottom of the ocean, and have been raised to their present condition. This is a startling statement, but no principle in science is better established than this: for rocks are found on the tops of these mountains full of plants which grow only at the bottom of the sea. The whole Valley of the Mississippi, from the Alleghany to the Rocky Mountains, and from the Gulf of Mexico to the Arctic Ocean, embracing a surface of three millions of square miles, is all found to be underlaid by rocks several miles in thickness, abounding in sea plants and animals. These rocks have not a horizontal position, but are found lifted up and more or less inclined, showing conclusively that the continents have been lifted up and that the ocean has not withdrawn from above them. These were thrown up at different periods: and geologists have established twelve different epochs at which these elevations have taken place in Europe; in our country there are ascertained to have been at least half a dozen. By what power was this wonderful phenomenon accomplished—and is this power still in action? are inquiries of high interest. Geologists are agreed that heat is the agent, and the thunder of two hundred volcanoes shows that its terrible energy has not departed. By deep excavations into the earth it has been proved that as we approach the centre the temperature continually increases. The heat of the sun never extends beyond one hundred feet below the earth's surface; still it is found that even beyond its influence the heat goes on to increase as we approach the centre. A remarkable instance of an experiment upon this subject occurred at Paris only a few months since. The Government had ordered the construction of an Artesian well; and on finding no water at the depth of 900 feet, ordered its discontinuance. By the request of a number of scientific men it was carried, however, to the depth of 1800 feet, when, on lifting the auger out, a stream of water gushed forth which was found to be at a temperature of 83 degrees—almost at blood heat. Judging from this fact it is certain that at the depth of a mile, water would boil, and at sixty miles below the surface rocks and all other substances would be rendered incandescent.—There seems to be no escape from these conclusions, and the facility they furnish for the solution of difficult problems in the philosophy of Nature, as the spheroidal figure of the Earth, the existence of volcanoes, the fact that the Northern regions have been warmer than they are at present, has disposed naturalists to adopt it as the true theory. The writings of Baron FOURIER on this subject are especially instructive.

The history of the remains of animals and plants found buried hundreds of feet below the surface of the earth is full of curious interest. In Great Britain rocks exist six and a half miles in perpendicular thickness; and in this are found not less than ten thousand species, all different from any now known. The conclusion is, that the animals and plants, of which we have here the fossil remains, must have lived before the present race of animals had a being; else why should not some of these likewise be found embedded? These fossils are found in layers or groups at different depths, and about a dozen different groups are found; and the animals in each group are totally unlike those of all the others. The conclusion is, that these several successive groups were created at different periods, and that one race was destroyed to make room for another, so that five or six of these changes must have taken place before the creation of the present race. This does not necessarily conflict with revelation; for though Moses fixes the date of the creation of the present race, he says nothing of the creation of the globe, except that it took place 'in the beginning," which is a perfectly indefinite expression. Between that time and the formation of man, a long period of time must have rolled away. It is found, too, that when these animals lived, the climate must have been tropical, or even ultra-tropical.

* * * * * *

Marks are found on rocks which precisely resemble those of drops of rain falling upon soft mud; and by their elongation we may ascertain the direction of the wind at the time of the shower.

The most remarkable tribe of animals of which remains have been discovered is that called the *Saurian*, analagous to the alligator, which inhabited northern countries. One called the *Ichthosaurus* has been found, thirty feet long, and with eyes fourteen inches in diameter. Another of these animals, resembling in shape our common black lizard, has been found, called the *Icuanodon*, one hundred feet in length, and fourteen feet around.

There is no evidence that this animal was very ferocious or savage, and I have accordingly had his organ of benevolence drawn large. I must confess, however, that notwithstanding this I am strongly reminded by his appearance of MILTON'S description of Satan:

> "With head uplift above the wave, and eyes
> That sparkling blazed; his other parts beside,
> Prone on the flood, extending long and large,
> Lay floating many a rood; in bulk as huge,
> As whom the fables name, of monstrous size,
> Titanian, or earth born, that warred on Jove,
> Briareus, or Typhon, whom the den
> By ancient Tarsus held: or that sea-beast,
> Leviathan, which God of all his works
> Created hugest that swim th' ocean stream,
> So stretched out huge in length the arch-fiend lay,
> Chained on the burning lake." *Tribune.*

THE

MAGNET.

VOL. I. NEW YORK, AUGUST, 1842. NO. 3.

MAGNETISM.

SLEEP-WAKING.

The facts given under this head in a preceding number, (it should be remembered) were not creations of the fancy, fabricated to serve an unworthy purpose. They were sober realities, as much so as that you now see with your eyes, or that you are conscious of what you are now doing.

We give these accounts to show, that man has a peculiar *sense* which, in certain states of the nervous system, enables him to see without the use of the eye, and to hear without the natural use of the ear. We continue our quotations from Dr. Elliotson:

When persons use their muscles, there must be that internal feeling which accompanies all muscular exertion,—there must be the feeling of weight and resistance. I saw the sleep-waking condition strikingly exhibited lately in a patient of mine in University College Hospital,—a girl, sixteen years of age, destitute of the sense of smell as long as she could remember, subject to pain of her vertex, and, like her sister, epileptic, though very intelligent, very facetious, and of excellent behaviour. After the Baron Dupotet, passing the ends of his fingers up and down before her, had sent her to sleep, on many occasions, for a few minutes at a time, she was observed one day suddenly to talk unconnectedly and move her arms and hands about, though incapable of hearing, seeing, or feeling. She lay in bed or sat, with her eyes open, saying a great number of things, such as she might say when awake, told stories, and with great expression of voice, features, and manner, mimicked the voices and conversation of many fellow-patients accurately, and mimicked the manipulations of Baron Dupotet; yet she saw nobody, could not be roused by hallooing in her ear, and bore the sharpest pinches with indifference. She was cross, expressed displeasure at having before been magnetized, said she would not be made a fool of, complained of different things, shook her head, moving it forwards and frowning, and saying, "You dirty beast." Her hands were very cold in such attacks, and her whole surface pale. She would suddenly come out of this state, stare about like a person waking, rub her eyes, become still, smile, and be completely herself without the least knowledge of what she had been doing, and feel quite ashamed and beg pardon, when informed that she had said we made a fool of her. After some hours or days, the attack would return. But, before she remained permanently awake, she sometimes fell back repeatedly into the sleep-waking: and nothing could be more striking than to see her eyes suddenly fixed unconsciously, and then all the phenomena of perfect external insensibility and talking begin again in less than a minute: and, in a few minutes, to observe her become suddenly still, look wild or fall fast asleep for an instant, rub her eyes, be sentient of every thing around her, smile, and in short in less than a minute be wide awake, without any knowledge of the state in which she had just been. As she could not be awakened by the strongest agency applied to her external senses, I resolved to try the effect of producing an internal sensation, and heightening her volition over her voluntary muscles. I took her off the bed, and found she could not stand. Two of us supported her erect, and lessened the support now and then, so that she might feel she was falling. Her knees bent, and she would have fallen, had we not held her up. This was repeated a few times, till at last she seemed to feel the ground a little with her feet, and, when we lessened our support, her knees bent less: at length she stood pretty well. Then I forced her on, and, though her legs at first dragged, she at last feebly attempted stepping, soon she walked, and, when she walked firmly, being led on quickly by one of us on each side, she suddenly awoke. This was all the work of not five minutes. I presently laid her down on the bed, and she in a minute relapsed into her old condition: I raised and walked her again, and she was instantly restored; and remained without any return for a week. I did not afterwards succeed in this way. When the affection returned it was not so marked. She had some power of perceiving persons, and hearing and feeling, so that she gave a certain amount of answer and expressed some uneasiness on being pinched. After a few days such attacks ceased, but she fell into the delirium only of the state,—ecstatic delirium: having the full use of her external senses, her volition over her muscles, knowing where she was, and active in all her intellectual faculties and feelings; saying she felt as if her brain was coming out and was too big for her head, and begging me to cut her head off; in short, being wide awake, but wandering unconnectedly from one subject to another, dejected, saying innocent, but absurd, rude, though often witty and droll, things, which showed her feelings to be disturbed, incoherent, and mimicking admirably, whistling and singing well; and picking paper or linen to pieces: at length in her attacks she occasionally swore and was amorous. After remaining in this condition for a few days, she suddenly by mesmeric manipulations one evening became herself completely; still complaining of pain at the top of her head, which she had suffered from for many months and for which I had bled her repeatedly. She afterwards suddenly fell into this delirium again several times, and, after continuing in it some hours or days, would by

mesmeric manipulations in two or three seconds become completely herself and remain so for some hours or days. To observe her picking paper or linen to pieces, talking incoherently, now whistling aloud, now singing in the ward, cross, miserable, rude, dancing about, unable to look steadily for many seconds, her eyes converging from parallelism, her countenance pale, and expressive now of insanity, now of fatuity; and then in two or three seconds to see her completely herself, smiling, perfectly rational, amiable, well behaved, with an expression of great intelligence, was one of the most extraordinary changes I ever witnessed;—to see the functions of the brain in many points nearly suspended, in many over excited, and in many wrong,—the organ altogether oppressed and deranged, and then righting itself and performing all its functions properly in an instant, made an impression upon me never to be effaced. When not in an attack, she forgot every thing that had occurred in her attacks: but, when in them, she recollected the occurrences of preceding attacks. In the delirium her hands were not always cold as in the sleep-waking. The pulse appeared hardly affected.

I will relate a number of examples of sleep-waking to show the various amount and extent of activity in this condition.

This first is very similar to that of my own patient, but *sleep-waking* was added in one stage of the paroxism.

"At Berlin," says Gall, "a young man, sixteen years old, had extraordinary attacks from time to time. He was agitated in his bed without consciousness; his movements and gestures showed a great activity of many internal organs; whatever was done to him, he did not perceive it; at length he jumped out of bed, and walked hastily in the apartment: his eyes were then fixed and open. I placed different obstacles in his way, which he removed with his hand, or carefully avoided; then he threw himself suddenly on his bed, was agitated there some time, and at length awoke and sat up, very much astonished at the number of curious persons who were about him."

Here was a certain amount of *sight* and *touch*, and *sense of resistance and weight;* all was *forgotten;* the changes were *sudden.*

"M. Joseph de Roggenbach, at Friburg in Brisgau," continues Gall, "told me, in the presence of many witnesses, that he had been a somnambulist from his infancy. In this state his tutor had frequently made him read; made him look for places on the map, and he found them more readily than when awake; his eyes were always open and fixed; he did not move them, but turned his whole head. Many times they held him, but he felt the restraint, endeavoured to liberate himself, but did not wake. Sometimes he said he should wake if they led him into the garden, and *this always happened.*"

Here was a certain amount of *sight*, *touch*, and feeling of *resistance* and *weight*; an *increase of one menial power;* and a certain *power of prediction;* he moved, not his eyes, but his *whole head.*

"I knew also the history of a miller, who, dreaming and with his open, would go into his mill, enter upon his usual daily occupation, return to bed by the side of his wife, without remembering in the morning any thing he had done in the night."

Here was a certain degree of *sight*, and feeling of *resistance* and *weight;* and all was *forgotten.*

M. Martinet speaks of a saddler accustomed to rise in his sleep and work at his trade: and Professor Upham of an American farmer who rose in his sleep, went to his barn, and threshed out five bushels of rye in the dark, separating the grain from the straw with great exactness.

These are examples of sleep-walking.

The following are examples of sleep-talking, or sleep-talking and sleep-walking:—

"Dr. Blacklock, the blind poet, on one occasion rose from his bed, to which he had retired at an early hour, came into the room where his family were assembled, conversed with them, and afterwards entertained them with a pleasant song, without any of them suspecting he was asleep, and without his retaining after he awoke, the least recollection of what he hod done."

"Dr. Haycock, Professor of Medicine at Oxford, would deliver a good sermon in his sleep: nor could all the pinching aud pulling of his friends prevent him."

Horstius mentions a young nobleman who was observed by his brother to rise in his sleep, put on his cloak, open the casement, mount by a pulley to the roof of the citadel of Brenstein where he was, tear a magpie's nest to pieces, wrap the young ones up in his cloak, return to his room, place the cloak with the birds in it near him, and go to bed. In the morning he told the adventure as a dream, and was astonished when shown the magpies in his cloak, and led to the roof and shown the remains of the nest.

Dr. Franklin says, "I went out to bathe in Martin's water hot bath, in Southampton, and, floating on my back, fell asleep, and slept nearly an hour, by my watch, without sinking or turning,—a thing I never did before, and should hardly have though possible." This showed only the completeness of his repose: but Dr. Macnish quotes a case of actual swimming in sleep on the coast of Ireland. "About two o'clock in the morning, the watchmen on the revenue quay were much surprised at descrying a man disporting himself in the water, about 100 yards from the shore. Information having been given to the revenue boat's crew, they pushed off, and succeeded in picking him up, but strange to say, he had no idea of his perilous situation, and it was with the utmost difficulty they could persuade him he was not still in bed. But the most singular part of this novel adventure, and which was afterwards ascertained, was that the man had left his house at twelve o'clock that night, and walked through a difficult and, to him, dangerous road, a distance of two miles, and had actually swum one mile and a half, when he was fortunately discovered and picked up." He then adds a case of fishing. "Not very long ago a boy was seen fishing off Brest up to the middle in water. On coming up to him, he was found to be fast asleep."

The information given us with respect to these cases extends no further, and we cannot tell the state of the eyes.

Dr. Pritchard mentions an individual who, having "been in the habit of frequenting a public promenade where he used to meet his acquaintances, was seen to rise from his bed at night and walk in his shirt along the same path, which extended a mile on the brow of a hill, stopping very frequently and greeting different individuals whom he he had been accustomed to see in the same place."

Vision might here have existed sufficiently to show him his way, though the state of his brain suggested to him imaginary forms; or he might have made his greetings by habit, without fancying he saw individuals.

According to the newspapers, a year or two ago, John Green, a plasterer, accused Mary Spencer at the Town Hall, Southwark, before Alderman Thorp, of stealing from him a pair of trowsers which he

was carrying home at ten o'clock at night, through High Street, in the Borough, fast asleep.

"He deposed that, after finishing his work, he went to see some friends at Pimlico, and was accosted by a female; he had at that time a bundle under his arm. He knew no more of what transpired until between one and two o'clock on Sunday morning.

Alderman Thorp. What! were you so drunk that you cannot tell what happened?

"*John Green* (with great simplicity). I was not drunk, your worship; I was fast asleep. (Laughter.)

"*Alderman Thorp*" (with greater simplicity, though officially one of those who are presumed competent to determine who are the fittest persons to be physicians and surgeons and teachers in St. Thomas's and other hospitals, and who generally allow themselves to be led by one whom they have made treasurer and consider fit to guide them in their judgment, having himself in most instances already retired from business). "You cannot be serious. I never heard such a thing, as a man walking through a crowded thoroughfare, like High Street, without being disturbed.

"*John Green.* What I have stated, your worship, is true; I am unfortueately too frequently afflicted with fits of somnambulism; and, for greater security from robbers, I always make what articles I carry fast to my arm, so that if any one attempt to snatch it from me it would awaken me.

"*Alderman Thorp.* But how do you know the prisoner is the party who accosted you in the Borough? If you were asleep, you could not see her.

"*John Green.* Strange as it may appear, although I have not the power to arouse myself when in such a state of excessive lethargy, yet I can retain the sound of persons' voices in my mind, and, from the voice of the prisoner, I have not the least doubt she is the party.

"*Alderman Thorp.* How do you account for the lapse of time, from being accosted by the prisoner up to the time you discovered your loss?

"*John Green.* I am in the habit of walking for hours in my sleep, and if an attempt had been made to forcibly take the bundle from my arm, it would have aroused me; my handkerchief was cut, and thus the bundle was easily taken away.

"*Alderman Thorp.* I never heard such a case before; was the bundle found?

"Acting Inspector M'Craw, division M., answered in the affirmative, and added, that what the complainant had stated about walking the streets and roads was true: he had made inquiries, and found it to be the fact: it was well known to the police.

"Watt, Police constable 163., division M., deposed, that the complainant came to the station-house between one and two o'clock on Sunday morning, and made precisely the same statement he had made before the Alderman. The Inspector thought the tale savoured of the marvellous, and told witness to accompany him (complainant) in search of the property; and on arriving at a house in Kent Street, Borough, he said he thought the bundle was there. He knocked at the door, which was opened, and by the door of a room wherein the prisoner was sleeping, the property was found. The moment she spoke, he said the prisoner was the person who stopped him in the Borough. Witness took the prisoner to the station-house.

"The prosecutor here pointed out the way in which the bundle must have been taken away, and showed the Alderman the rent handkerchief.

"Mr. Edwards for the prisoner contended that no jury would convict upon the evidence of a sleep-walker, in prosecution against a street-walker. The prisoner laid no claim to the bundle; and as the complainant had sworn it was his property, the police would give it up to him.

"*Alderman Thorp* said it was so strange a case that he hardly knew how to act; he should, however, under the doubtful circumstance as to identity, give the prisoner the benefit of it, and discharge her. The bundle was given up to the complainant.

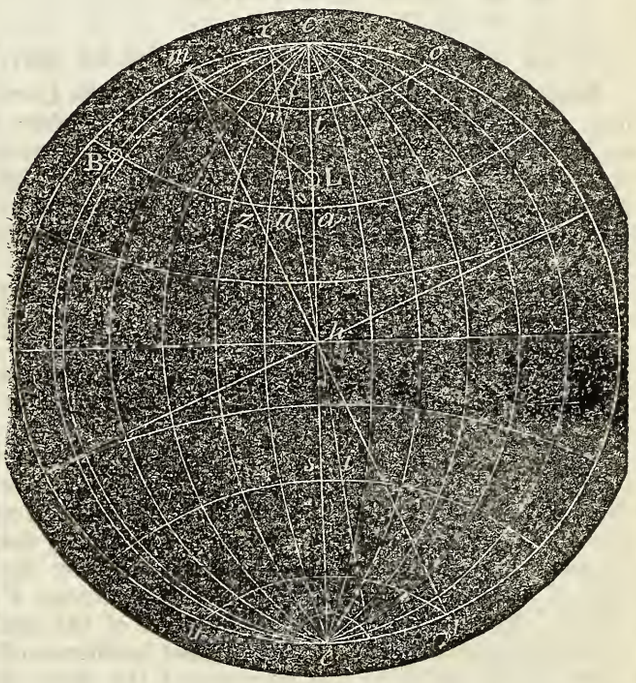
"A gentleman, who was in attendance, said he had known the complainant many years, and it was not an uncommon thing for him to be seized with that unhappy affliction while at work on the scaffold, and yet he never met with an accident, and while in that state, would answer questions put to him as though he was awake."

Hearing was retained, as well as the sense of *weight* and *resistance*, and possibly *sight* to a certain degree; the attack came on suddenly, in the waking state; so that the case, like that of my patient, was one of partial slenp in the waking state,—ecstacy as it is termed, and not of partial oxcitement during sleep.

For the Magnet.

THE MAGNETIC FORCES.

When the declination has arrived at its maximum at any place *without* the arctic and antarctic circles, the poles move on in a straight line, or nearly so, a certain distance from any such place, as seen by the line extending from London, L, to the arctic circle, *m*, (fig.8 below,) and this distance, as ascertained by geometric formula, is 1° 53′ 31″.



The line of no variation *n i*, crosses the earth's axis *a s*, at an angle of 6° 28′, and it does so because the verse sine of the planes of the arctic and anthartic circles *m o* and *u r*, around which the poles move, is each 6° 28′. This line moves from east to west at the same angle with the axis, at the annual rate of 32′ 26″, and crossed the meridian of Greenwich on the 9th of July, 1657, and is now in this country, or the western hemisphere. In its revolution around the earth it describes the small circles of no variation around the terrestrial poles *c e*, the diameter of each of which is 12° 56′.

I may now proceed to show that the earth is magnetized in the manner I have dscribed; and in doing so it will be necessary to determine first, the longitude of the magnetic pole in the arctic circle,

and then proceed to show the rate of motion of the magnetic poles. To determine these important points, after I had magnetized the ring and disc, R. W. Haskins, A. M., of Buffalo, N. Y., was soon after induced to take three solar observations, on three successive days—the 14th, 15th and 16th of September, 1837; and these were reduced by Dr. Scott, of that city, and the declination found to be 1° 25′ 03″ 04‴ W., in latitude 42° 53′ N., and longitude 78° 55′ W. I then proceeded to find the longitude of the pole in the following manner:—98° 00′: 23° 28′ : : 42° 53′=11° 10′ 53″ 09‴. The obliquity of the ecliptic being 23° 28′, I found in this way the relative amount of the obliquity, in latitude 42° 53′, the latitude of the place of observation, or the distance from the meridian *a*, to the great circle of maximum declination *z*, in the latiude of Buffalo, B. The amount thus obtained was subtracted from the obliquity of the ecliptic. The relative amount of the angle of the line of no variation in the arctic circle was then found in the same manner. Thus, 90° 00′: 6° 28 : : 66° 32′=4° 46′ 50″, the 90° being the distance from the equator *h*, (fig. *11,) to the terrestrial pole *c*, and the 6° 28′ being the distance from the pole *c*, to the circle *x*. The 66° 32′ is the latitude of the arctic circle, and the 4° 46′ 50″, the numbers obtained, is the distance from *t* to *v* on the arctic circle.

The numbers thus found, with the declination of the needle, and longitude of the place of observation, were then added together. Thus:—

```
 78° 55′ 00″ 00‴ long. of place of observation.
 12  17  06  51=23° 28′—11° 10′ 53″ 09‴.
  4  46  50  00=  6 28 —  1  41 10.
  1  25  03  04 W. declination.
 97  23  59  55 W. long. mag. pole, Sept. 15, 1837.
```

Bond, the astronomer, found no declination in London, in 1657; and the observation of Mr. Haskins, at Buffalo, shows that the line of no variation crossed the meridian of Greenwich, on the 9th of July of that year; for the difference in time from 1657 to 1837, is 180 years; and 32′ 26″, the rate of motion of the magnetic poles, multiplied by 180, gives 97° 18′, and the 68 days from the 9th of July to the 18th of September, at the same rate, amounts to exactly 5′ 59″ 55‴, which, added to 97° 18′, makes 97° 23′ 59″ 55‴, the west longitude of the magnetic pole on the 15th of September, 1837, as calculated above from the observation at Buffalo.

This is deemed a perfect demonstration of the rate of motion of the magnetic pole; but as it may not be clearly understood by the reader, I will proceed to find the longitude of several places in Europe, by the latitude and declination of the needle, to show the rate of motion of the pole; and for this purpose 4° 46′ 50″, the relative amount of the angle of the line of no variation in the arctic circle, must be subtracted from 97° 23′ 59″ 55‴, the longitude of the pole, to make the declination of the needle correspond with the rate of motion of the pole, which will leave 92° 37′ 09″ 55‴, the apparent longitude of the pole on the 15th of Septembe, 1837.

In 1576, Norman found the declination in London, lat. 51° 31′, to be 11° 20′, and from that time to 1837, the time of the observation at Buffalo, is 261 years, and the longitude of the place of his obsrvation is thus found:

```
141° 05′ 06″ 00‴=32′ 26″+261 years.
—92  37  09  55 W. lon. mag. pole, Sept. 15, 1837
 48  27  56  05
—23  28  00  00 obliquity of ecliptic.
 24  59  56  05
— 3  42  05  38 relative amount of angle of line of
 21  17  50  27                [no variation, in lat. 51° 31′.
—20  57  57  54=11° 20′ declination.
     19  52  33
—    15  46  20 difference in time of year.
      4  06  13 W. long. of place of observation.
```

The difference in the time of year, carries the time of the observation back to 20th March, 1576, at the time of the vernal equinox.

The time of year in which the observation was made is not known, and I have consequently assumed the difference in time of year, between this observation and that at Buffalo. It is said to have been taken at the old Lime House, three or four miles west of the Observatory at Greenwich

The declination is converted into degrees of longitude in the following manner:—

90° 00′: 166° 30′ : : 11° 20′=20° 57′ 57″ 54‴

London.—Lat. 51° 31′. Declination 5° 36′ E., by Gunter, 1612.

```
121° 37′ 30″ 00‴=32′ 26″×225 years.
—92  37  09  55
 29  00  20  05
—23  28  00  00 obliquity of ecliptic.
  5  32  20  05
+    7  00  00 dif. in time of year.
  4  06  42  40
—4  04  00  00 declination.
     2  42  40 W. long. of place of observation.
```

The obliquity of the ecliptic could not, it will be seen, be used in this, like the other examples, nor any other example where the remainder is less than the declination. The use of the relative amount of the obliquity of the ecliptic must also be dispensed with when the remainder is less than the declination, and the amount of the angle of the line of no variation substituted in its place, and then the relative amount of this angle in the same order as that commencing with the obliquity of the ecliptic in the former examples: because the angle of the obliquity, the relative amount of the obliquity in the latitude, the angle of the line of no variation, and the relative amount of this angle in the latitudes, correspond with the angles of the needle with the terrestrial meridians.

Leyden.—Lat. 52° 08′. Declination 5° 00′ E., by Peter Adsiger, 1269.

```
307° 00′ 28″ 00‴=32′ 26″×568 years.
— 92  37  09  55 W. long. mag. pole, Sept. 15,1837
214  23  18  05 E.  "   "   "   "  1269.
+145  36  41  55 W.  "   "   "   "
360  00  00  00 the circle in which the pole moves.
145  36  41  55 W. long. magnetic pole, 1269.
 27  12  34  48 double the relative amount of
                  obliquity in lat. 52° 08′.
  6  28  00  00 angle of line of no variation.
     10  56  59 diff. between the angles of the
                  magnetic meridians of Lyden
                  and London.
+  5  00  00  00 declination.
184  28  13  42
—180  00  00  00 half of the arctic circle divided by
                  the great circle of the meridian
   4  28  13  42 E. long. of Leyden. [of Greewich.
```

Peter Adsiger says, "The exact quantity of this declination I have found, after numerous experiments, to be 5° 00′," and the result of this calculation, which is legitimately accurate in all its details, shows it to have been obtained by an observation on

*First No. Magnet.

the sun, at the time of the equinox, in September, 1269.

The rate of motion of the magnetic pole in the arctic circle, is thus clearly demonstrated, as well as the perfection of the magnetic instruments of the eastern nations, with which these declinations were found.

The great circle of maximum declination before noticed, which passed overLondon in 1820,L,(*fig.11) crossed the equator *h w* at *w*, 15° 39′ 42″ 34‴ east of the node of the magnetic equator *z*, making the distance from the node of the great circle of maximum diclination *u*, to the magnetic equator *d g*, 6° 28′, corresponding with the depression of the magnetic pole *m*, below the terrestrial pole P, or the verse sine of the plane of the arctic circle. So if we subtract from 66° 32′, the latitude of the arctic circle 6° 28′, the remainder will be lat. 60° 04′, the relative obliquity of which will be 15° 39′ 42″ 34‴, corresponding with the distance between these nodes. On the opposite side of the earth this order is reversed, when this distance is south instead of north of the terrestrial equator, as in this case.

These explanations, with those before made, on the relative obliquity of the ecliptic in the different latitudes, will enable the reader to understand the elements of the calculations to find the maximum declinations of the needle in the different latitudes, and of the legitimacy of the manner in which I now proceed to find the longitude of places in Europe, east of the meridian of Greenwich, where the declination is west and is decreasing.

—

Fredericksburgh, (Denmark.)—Lat. 58° 06′=15° 08′ 56″ 32‴. Dec. 18° 50′ W., by Prof. Hansteen, 1810.

Lat. 66° 32′—6° 28′=15° 39′ 42″ 34‴
15 08 56 32
00 30 46 02

15° 08′ 56″ 32‴
+15 08 56 32
30 17 53 04
—00 30 46 02
29 47 07 02 maximum declination.
—18 50 00 00 declination in 1810=34° 50′ 26″
10 57 07 02 [30‴ of longitude.

34° 50′ 26″ 30‴
10 57 07 02
+15 08 56 32—23° 28′
95 46 56 34

92° 37′ 09″ 55‴ long. pole 1837.
— 3 37 36 18=8′ 03″ 34‴×27 years.
—88 59 33 37
95 46 56 34
6 47 22 57
—00 9 37 03 diff. in time of year equal to 4′ 45″.
6 57 00 00 longitude of place of observation.

The yearly rate of decreace of variation in lat. 58° 06′ is about 11′.

The 8′ 03″ 34‴ used above is the mean ratio of increase of the declination on the earth where it is decreasing. This rate gradually increases from the equator to the magnetic poles, where it amounts to 32′ 26″.

—

Christiana, (Norway.)—Lat. 59° 45′=15° 34′ 45″ 20‴. Declination 20° 03′ W., by Prof. Hansteen, 1817.

Lat. 66° 32′—6° 28′=15° 39′ 42″ 34‴
—15 34 45 20
00 4 57 14

15° 34′ 45″ 20‴
+15 34 45 20
31 09 30 40
—20 4 57 14
31 04 33 26 maximum declination.
—20 03 00 00 declination 1817.
11 01 33 26

20° 03′=37° 05′ 29″ 17‴
37 05 29 17
11 01 33 26
+15 34 45 20—32° 28′
100 47 17 20

92° 67′ 09″ 55‴ W. long. mag. po. Sep. 15, 1837.
— 2 41 09 20=8′ 03″ 34‴×20 years.
—89 56 00 35
100 47 17 20
10 51 16 45
—00 9 16 45 difference in time of year, equal to
10 42 00 00 longitude of Christiana. [4′ 20″.

—

The following are examples for finding the longitude of a place where the declination is at its maximum:—

Rome.—Lat. 41° 54′=10° 55′ 30″ 08‴=3° 00′ 38″ 08‴. Declination 17° 12′ W., by Cassini, 1788.

92° 37′ 09′ 55‴ W. lon. mag. pole, Sept. 15, 1837.
—26 29 14 00=32′ 26″×49 years.
66 07 55 55 W. long. mag. pole, Sept. 15, 1788.
—23 28 00 00 obliquity of ecliptic.
42 39 55 55
—10 55 30 08—23° 28′
31 44 25 47
— 3 00 38 08—6° 28′
28 43 47 39
—17 12 00 00 declination.
11 31 47 39
—00 41 20 27 difference between the angles of the mag. meridians of Rome and [Greenwich.
12 13 08 06
—00 14 51 54 difference in time of year.
12 28 00 00 E. long. of Rome.

Cassini made the declination a few minutes too much, as will be seen by the following example:—

Lat. 41° 54′=10° 55′ 30″ 08‴ relative obliquity in [latitude.
10 55 30 08
21 51 00 16
— 4 44 12 26
17 06 47 50 maximum declination in latitude.

66° 32′—6° 28=15° 39′ 42″ 34‴
—10 55 30 08
4 44 12 26

—

The exact east longitude of Paris has not been known to this time, notwithstanding the boasted perfection of the instruments for that purpose: the difference between the calculations of differnt persons being about 30″. There is however little doubt but the following example, calculated from the maximum declination, gives the exact longitude of that city.

Paris.—Lat. 48° 50′ 15″=12° 43′ 50″ 11‴. Declination 22° 04′, by M. Arago,* July 1, 1835.

*First No. Magnet.

*The declination gived by M. Arago is greater than it really was at the time by about 4 min.

66° 32′—6° 18′=15° 39′ 42″ 34‴

12°	43′	50″	11‴		—12	43	50	11
+12	43	50	11		2	55	52	23
25	27	40	22					
— 2	55	52	23					
22	31	47	59	maximum declination=41° 40′ 45″ [24‴ of logitude.				
92	37	09	55	W. long. of magnetic pole, Sept. [15, 1837.				
—00	58	06	35	difference in time—rate 32′ 26″.				
91	39	03	20	W. long. of mag. pole, July 1, 1835				
—46	56	00	00	double the obliquity of the ecliptic.				
44	43	03	20					
—00	41	41	14	=13° 25′ 31″ 25‴—12° 43′ 50″ 11‴†				
44	01	22	06					
—41	40	45	24					
2	20	36	42	E. log. of Paris (Observatory.)				

The line of no variation did not pass over Paris until nine years after it passed over London, or until 1666, notwithstanding it is east of London, in consequence of the angle of the line of no variation with the terrestrial meridians, as seen in fig. 8. If we add 163 years to 1666, the number will be 1829, the time of the maximum declination at Paris.

—

Observatory, Geenwich.—Lat. 51° 29′ 22″=13° 25′ 20″ 25‴. Declination 23° 01′ 19″ 48‴ W. by calculation, Sept. 15, 1837.‡

Lat. 66° 32′—6° 28′=15° 39′ 42″ 34‴

13°	25′	20″	25‴		—13	25	20	25
+13	25	20	25		2	13	22	09
26	50	40	40					
— 2	14	22	09					
24	36	18	31	maximum dec. at Observatory.				
—23	01	19	48	declination.				
1	34	58	43	decrease of the declination since the time of the maximum.				

24° 36′ 18″ 31‴=45° 31′ 05″ 36‴

		+45	31	05	36
		91	02	11	12
		+1	34	58	43
		92	37	09	55

92° 37′ 09″ 55‴ W. long. mag. pole, Sept. 15,1837

—92	37	09	55	
00	00	00	00	long. of Observatory.

Henry Hall Shearwood, M. D.

New York, July, 1842.

For the Magnet.

INTERESTING EXPERIMENTS.

Mr. Editor.—Having made Human Magnetism matter of experiment during three years, not in order to pecuniary interest, but simply to know its nature and effects, it may perhaps be conducive to the cause as well as interesting to your readers, for me, briefly, to state the result of my observations with a plain demonstration of its truth. This result has been a full conviction that *what is called Animal Magnetism is simply animal electricity, and as subject to certain fixed and determinable laws as natural electricity itself.* My own reasons for believing that it is merely the electric fluid, put in action by determinate volition, are many, and founded on a series of facts, careful experiments and inductions.

1st. *Experiment and solution.*—A man of 160 lbs. weight is raised on the points of the fore fingers of two men, in a horizontal position; he stiffens his muscles and all three forcibly respire a long breath with the effort of the two willing to lift him. The result is, that he is raised with no more effort than to lift ten pounds a piece—without breathing, four vigorous men cannot lift him, at arms length, with the whole hand placed under him.

The philosophical solution is, that the free electricity in the air inhaled is received into the lungs and causes the blood to circulate, &c., and on being thrown forth forms an electric vacuum over the man—into this he ascends, and were there no electricity in the air respired, and did it cover his whole person, he would require no effort to lift him, as it is the effort in proportion to the imperfection of an electric vacuum. The current sent through the fingers into his person, favors his specific levity. Now here is an effect and there is nothing of magnetism in its causality. Instead of attraction it is appulsion. He is driven by the electric current into the vacuum, and it now being destroyed, he, by the downward, is immediately drawn towards the earth. This is a legitimate conclusion. The experiment may be made at any time, and by any individuals. It is as complete a demonstration, that the agency is the electric fluid, as can possible be given.

2nd. *Experiment and solution.*—I threw the electric fluid of my own body into a tumbler of water and gave it to a boy of fifteen. In five minutes he became non-volant and specifically light. With his back towards me, as he was walking from me, at the distance of five, ten, and fifteen feet, I threw him fifty times, on two successive evenings, in experimenting, in every possible direction, except upward. He fell as light as the man lifted is felt to be, receiving no contusion, although he made no effort at self-preservation till just as he struck the floor. The Schalengers, of Courtland street, were present when it took place, 1838, at Crowfordville, Geo., and can testify to the truth of this statement.

The philosophical solution is this. The fluid received into the system of the boy presented a permanent pleonasm to the current of the electric fluid ever entering the earth, constituting gravity and an almost perfect obstacle to that sent from the brain along the nerves of volition; the consequence was, he became involuntarily and specifically light. He was evidently thrown, by the electric spark proceeding from my hand, in determinate volition. Here was no magnetic effect. It was altogether appulsive. The inevitable conclusion is, that the cause was animal electricity.

3d. *Experiment and solution.*—With an electric subject, alternately, with the same energy and determination of will and extent of manipulation, as many passes upward as downward, and no effect followed, except a slight electric feeling of alternate vibratory agitation. Solution—as it is the same when forming a natural magnet with the load stone, or with the violet rays, or by a galvanic current, if we alternately or rapidly change, as the case may be, that no effect follows, we may, with the highest certainty, ascribe the effect to the same cause. In forming the magnet it is well known to be an electric effect; so in making a clairvoyant. In clairvoyancy the brain becomes an electric vacuum, and the indi- feels, that is, sees, as much more clearly than with the eye, as it is a larger and more perfect organ.

4th. *Experiment and solution.*—In Chamber st., at a small select party, who met to amuse themselves in animal electric experiments, I threw the blind girl, experimented on by Mr. Hill, into the moon, venus, the sun, and a grand centre of systems, (not of the mind, for there is no centre, it being infi-

†The difference between the angles of the magnetic meridians of the observatories of London and Paris.

‡It is easy to determine the declination at any place, its latitude and longitude being known.

nite!) and found that her electric agitation was in exact proportion to the magnitude of the object—at the moon she was disgusted with the inhabitants—at venus, she fainted—at the sun filled with reverential fear, and in this centre awfully alarmed and overwhelmed. The conclusion was inevitable that it was an electric contact with these objects, the brain being the electric centre. This was further confirmed from the fact, that the time required to pass was the same, the atmosphere of the earth presenting the only obstacle.

5th. *Experiment and solution.*—I commenced operating on a subject standing, and who was highly electric. He refused and turned away. A strong impulse seized me. With a violent determination of will and action of the hands, he was smitten *en masse* to the floor, and ell over on his side. He was raised up instantly, his language was of extreme fear. "Take him away!—let him not touch me!—let him not put it on me again!" He was as pale as death and as weak as infancy. I can give the certification of this by substantial witnesses. Now, here is no magnetic effect, no sympathy, but all is appulsive. What is the solution? Why, that it is an electric materia conveyed. The conclusion is, that what has been called animal magnetism, is animal electricity, a natural causality and not essentially different from electricity itself. This being the case, it is subject to fixed and determinate laws, to be discovered and determined by experiment and fact. This is confirmed from the consideration that what is called nervo-magnetic in all the variety of physical and intellectual phenomena seen in experiment, may be thus easily and successfully explained, and from the fact that natural magnetism is now becoming evanescent in the conviction that it is purely an electric effect in its action and re-action. I have thus briefly thrown before you what I deem to be fact, and calculated, on a bare inspection, to do much good by stripping the subject of its mystery* and that aspect of legerdemain and humbuggery which it must have, so long as the grand principles of action, and especially the *medium and cause of efficiency*, remain unknown. The subject is vast, and volumes might be written upon it. Your periodical requires brevity and a statement of such facts as are calculated to present matter of tangible existence to the truth in the apprehension of universal mind. You will occasionally hear from me. I am, respectfully,

Your ob't serv't,

Plainfield, N. J., Aug. 1, 1842. JAS. S. OLCOTT.

* I have since operated in Plainfield, N. Jersey, by throwing the electric fluid of my own body in a tumbler of water containing a gill—on administering to a youth of fifteen he fell as if struck by lightning. Dr. Craig was present, and examined the patient. Hands cold, muscles relaxed or stiff at my volition. pulse one hundred and twenty per minute. About one hundred were present. This subject will defy all mutual exertion to rouse him from his electric concentration. A pin forced into his flesh, &c., is unfelt. The electricity thrown into his system produces an inward rush through the absorbants, as is evident from the fallen chest, and the muscles of his countenance, coldness of the extremities &c. A key held before a gentleman, behind a lady beautifully clairvoyant, who was, at a few passes thrown into it, extinguished her perception of all but his head, as it was raised to his face the head disappeared. The conclusion was, as other objects were, in her then slightly electric state distinctly seen, that the key contracted the electric materia radiated from his body and prevented electric perception. In sustaining a boy of fifteen, made electric by drinking the electrified water, I was drawn, as he fell, into an electric vacuum, and received a severe shock and a proportionate momentum, which was observed by all present. J. S. O.

The experiments referred to by our correspondent, have often been performed by ordinary magnetisers. Before he assumed that, what he did had nothing to do with magnetism, he should have pointed out the *difference* between magnetism and electricity —ED.

THE MAGNET.

NEW YORK, AUGUST, 1842.

PHRENO-MAGNETISM.

Phrenology and Magnetism are inseparable. They are as much united as the soul and the body. For, what are the developments of the brain, or the physical organs, without *life?*

That animal life is nothing more nor less than Magnetism in an organized form, so to speak, cannot admit of a doubt in the mind of any one at all familiar with the phenomena described in the preceding numbers of this work. The experiments by which we have satisfied ourself of this fact are too numerous to be described here; nor, indeed, would they be sufficient to convince all, if we were to detail the whole of them. They must be *seen*, they must meet all the senses of the sceptic before he would yield to the inferences we draw from them. We have stated enough, however, already, to convince any candid mind, that admitting *we* have not been deceived in what we have seen, we have sufficient reasons for many of the conclusions at which we have arrived. Instance the following:—

A. knows nothing of Human Magnetism; nor is he at all familiar with the laws of Terrestrial Magnetism. On putting him to sleep, and applying a pointed steel instrument to the centre of the organ of causality over the left eye, his head is attracted. We asked him the cause, and he answered, "it pulls me." On applying the instrument to the same organ over the right eye, he drew his head back, and said it "pushed" him. And the same results followed on applying the steel to the opposite portions of the brain in the back part of the head. We applied it to the end of one of the thumbs, and the hand was immediately stretched out; when applied to the other, the hand was drawn back. So also, when we have applied it to one organ in the brain, the patient said it gave a sensation of "drawing," and when we touched its opposite organ, it was said to *attract* the head. These tests, repeated on different persons, long ago, brought us to the conclusion, that there is a most remarkable *correspondence* between the natural functions of the different organs, and the *positive* and *negative* magnetic forces. That the functions of the different organs are most curiously balanced in *opposition* to each other, is a matter of fact, of which any Phrenologist may satisfy himself in a very short time. Take for instance, the organs of Combativeness, and Pity or Suavity, or Self Esteem, and Submission, or Reverence; is there no *opposition* in the functions of these organs? And if one of the organs is balanced in this way, others may be, and, our experiments have rendered it quite certain, that the whole are thus balanced in opposition to each other. Indeed, so far as these experiments have proved any thing, they have demonstrated, beyond all doubt, not merely the existence of a large number of organs, of which Phrenologists have never, heretofore, assumed to have any knowledge or suspicion; but they have shown, that nearly, if not every organ in the head has its opposite, whose functions, if we may so speak, are *positive* or *negative;* as for instance, one organ for Retaliating injuries, another for the exercise of For-

giveness; one for Analysis, another for Generalizing; one for Joy, another for Grief; one for Cheerfulness, and another for Sadness, and so of the rest.

And we might well inquire, how a rational, *accountable* mind, could have been constituted in any other way? Suppose one had an organ of Destructiveness, without any antagonist organ of Conservativeness? or suppose a head were to be endowed with large Aversion and no Suavity at all? or large Physical Fear, and no Courage? Suppose a mind with all *Positive* organs, or one with the organs all *Negative?* Is it difficult to imagine what the results would be in that case?

The truth is, (as we think,) our experiments have demonstrated that the mind is made up of a congeries of *opposite* faculties, which balance and influence each other; and our virtue consists in governing these faculties according to the laws of the Great Creator.

If our Phrenological friends should feel disposed to deny the views here given, it would be well for them to attempt two things:—first, tell us what it is, that makes one of the cerebral organs manifest one disposition rather than another; or, rather, how it is that one organ prevents the exercise of another? If they are not in opposition, how can one control, or modify the action of another? And secondly, how is it that the mental manifestations are dependent upon the *state* of the brain, at all? If these organs are not *animated*, and exercised by *Magnetism*, what is the agency by which the WILL operates upon the muscles, and makes known the feelings within? If animal life be not Magnetism, in a modified or organized form, how do you account for the phenomena stated in our first number, where persons were put to sleep by a common magnet? And, how will you account for the phenomenon stated above, where a pointed steel *attracts* and *repels* different portions of the head? True, it may be, that this phenomenon may not appear in every case of *somnipathy*; and for obvious reasons. It may depend on the magnetic susceptibility of the patient. There are, undoubtedly, more or less magnetic qualities in different persons; qualities which are more or less susceptible to the magnetic influence; and other bodies may, and do, unquestionably, possess more or less power for communicating, the magnetic forces. Or, it may be, that one person is more *positive*, and another more *negative*, and the power of one person, or body, over another, may depend on the proportions of these two forces, when brought in contact with each other.

We shall, probably, be asked why the human body is not always as much affected by the approach of a common magnet as it seems to be sometimes, in what we call the Somnipathic state? We answer, it may be for the same, or similar reasons, that every piece of iron poised upon a pivot, does not point to the north and south poles. Or we might answer this question when you have told us why it is that a rod of iron has no polarity when held in one position, and why it instantly acquires that polarity, when turned in another. Why is it that the needle, sometimes, points directly to the north pole, and at other times, varies from it?

There is another fact, which Phrenologists should explain, who deny the reality of Human Magnetism. They should be able to tell how it is that the organs *act upon each other*? How is it that one organ excites another? The excitement of Self Esteem for instance, often brings Combativeness into action; and the excitement of Mirthfulness, not unfrequently suffuses the eyes with tears. This phenomenon is explained by the laws of Magnetism. The organs of Sadness are contiguous to those of Mirthfulness. The poles of Sadness are located in the lachrymal ducts, as well as at the lower corners of the mouth; and when the organs of Sadness are directly or indirectly excited, the effects appear in the lachrymal discharges from their poles.

The sympathetic points connected with Mirthfulness are located at the upper corners of the mouth, and hence when these organs are excited we see the corners of the mouth drawn up, and apart, in the act of laughing. The poles of Self Esteem are located in the middle of the upper lip, with that of firmness. And when these organs are excited you will see what has been appropriately denominated, "a stiff upper lip." But why it is that one with large Firmness and Self Esteem carries a stiffer upper lip than others, Phrenology alone, could never tell.

The poles of modesty are located in the cheek, and when we excite the organs, the cheeks are immediately suffused with blushes. But why a person blushes when modesty is excited, no one could ever tell till the experiments above referred to, enabled us to explain the cause.

We must take more time for doing justice to this subject; the above are merely a few desultory remarks, to give our readers some idea of what we may hereafter have to offer upon it.

LIFE, HEALTH, DISEASE, AND DEATH.

We are much gratified to find that the article on the magnetic treatment of disease, in our last, has given so general satisfaction, and that it has contributed not a little towards directing the attention of the friends of Human Magnetism, to the only legitimate use of this wonderful agency. We have too long been taunted with the *cui bono?* of this subject, and have had to content ourselves with referring more to the good it is said to have done in other countries, than to what we were able to show of its theraputic benefits among ourselves.

That Magnetism has been the means of some of the most astonishing cures, is a matter of fact, not to be disputed. Here are the persons who have been benefited by it. Nor do we see what is to be gained by attempting to deny this fact. Say, if you will, the cause is *imaginary*. How does it come to pass that one is relieved, by imagination, from a *real* disease? Take the case numbered 6 in the last Magnet. That lady had been unable to stand upon her feet for five months. This was well known to her friends, and to her physician. Her limbs were said by the attending physician to have been paralyzed. That she could not straighten them, is a matter of fact, susceptable of the clearest demonstration.

When we first saw her, we understood her to say, that only the left limb was paralyzed, and, accordingly, we did not operate on the other at all. Of course, nothing was said to the patient as to the nature of the operation, nor of any results to be anticipated from it. Immediately after the first sitting, she straightened the left limb, and declared that the knee joint had become relaxed, so that

she was able to place her foot upon the floor, a thing she had been utterly unable to do for five months before. But she could not stand upon the right foot, till she informed us that the righ limb, also, was paralyzed, and it had been operated upon the same as the other. And, after the third operation, she actually walked across the room, and, from that time till the present, she has walked more or less, about every day! Now, we ask, was the relief, in this case, imaginary, *merely?* If so, then was the *disease* imaginary. And, if there has been imaginary paralysis, there has been, and there may be, again, *imaginary fever*, imaginary *consumption*, imaginary rheumatism, imaginary bronchitis; and in fact, one disease must be seated in the imagination as much as another.

We have ventured, before, to state the opinion to which we have long been inclined, that all diseases arise *from derangement of the Magnetic forces in the human system.* To our own mind, this fact has been demonstrated beyond the shaddow of a doubt. And we now venture to announce another conclusion, equally important, to which we have been led by a long course of Magnetic experiments. It is this:

That every disease, whether local or general, is controled by portions of the brain, and they are dependent upon the state of the cerebral organs; and, through those organs, they may be excited, controled, modified, and removed.

We hinted such an assumption more than a year since; but our investigations have, since, left us no room for a doubt on this subject, though we are not aware that any similar opinion has ever been suggested or entertained by any other person, the world over. We know, indeed, that certain venders of patent nostrums have made great pretensions to having demonstrated that man can have but one disease, and this is said to be in the blood, a most preposterous idea! For, who should not know, that if the disease is always in the blood, the effects must always be extended over the entire system, and penetrate all its parts, wherever the blood circulates?

Of the above facts we have fully satisfied ourselves; nor have we any doubt but that time and investigation will satisfy every other person, that we had truth and facts for our basis when we came to the following conclusions:—

I. That *Animal Life* is nothing more nor less than *Magnetism* in an organized, or modified form. The magnetic forces produce the conception and growth of the human system; and their decay and separation from the body, results in death.

II. That this *life* is generated between the brain and the semilunar plexus, or, perhaps, the solar plexus.

III. That from the brain, vitality is distributed over the system; and different parts of that organ supply it for different portions of the body; so that every vital or physical organ and muscle is *animated* and *controled* by a separate portion of the brain.

IV. The temperaments are fixed and determined by the predominence of the different magnetic forces. A predominence of the *negative* forces makes one temperament, and the *positive*, another; and the combination of the different forces in the same person, and proportions of the forces in certain parts of the system, make a combination of the different temperaments in the same person.

V. Derangement of the magnetic forces, in the mental organs, produces monomania, insanity, and madness.

VI. Derangement of the cerebral organs, which control the physical organs, produces disease; and the derangement of the *sympathic points*, or poles in any other parts of the system, produces the same results, and effects the brain, more or less, in all cases.

VII. All diseases may be controled, more or less, by magnetising the cerebral organs corresponding with the parts affected. Hence, as far as we have ascertained the location of the different cerebral organs, which control the vital organs, we have found magnetism to be a specific for recent diseases of every kind.

VIII. For nervours complaints, and diseases of the brain, such as monomania, insanity, and madness, magnetism is a perfect cure, in recent cases where we can ascertain, with certainty, the different parts which have been affected; and where there is no malformation, or destruction of the organs.

IX. Medicines have no effect in removing disease, except in so far as they produce the right kind of action upon the magnetic forces of the parts diseased.

X. Health, therefore, is that state of the system in which all its organs perform all their natural functions, unrestrained, by a due proportion of the magnetic forces.

We beg the attention of the medical faculty to these opinions. They need not attempt to remind us of the ten thousand *theories* which have, heretofore, been put forth by members of the profession and others, as to the nature of particular diseases, and the best methods for their cure; nor refer us to the vagaries of quacks and empirics which have, in their turn, drawn the multitudes from the claims of science and the dictates of common sense. We know, but too well, how exceedingly difficult it is for one to give up favorite opinions, and those, too, into the belief of which he has been educated by a life of patient study. Those who have been at much labor and expense in the acquisition of their opinions do not love to part with them, without what they may reasonably consider an equivalent. Nor does it alter the case at all, whether the opinions themselves be true or false; for, we shall find, that all are equally tenacious of their favorite theories when all must know, that each of them cannot be true.

Certainly, no candid mind will assume, that it is the better way to shut the eyes against the facts we have adduced, demonstrating, as it seems to us they do, man's magnetic nature, and the efficiency of this agency in the cure of disease. Let us have the facts. Let us follow where truth leads the way, whatever may become of theories, and preconceived opinions.

PUBLIC EXHIBITIONS.—We are much gratified to find that our remarks against the public exhibitions of the magnetic sleep, and its usual phenomena, have met with the general favor and approval of the intelligent friends of magnetism throughout the country. It argues well for the cause of truth, and we venture to assure those who are desirous of seeing this subject elevated to its proper level with the other branches of science, that the signs of the times are numerous, and full of promise.

A correspondent wishes to know if our objections, here, will not apply, with equal force, against practical

illustrations of Chemistry, Phrenology, or any other science, made before public and promiscuous assemblies.

We answer, not at all. In the first place, we all know, that Human Magnetism is, altogether, unlike any other subject which can be named. It has to do with the nervous system, not of the operator and his patient merely, but with the nervous system of every other person present. And, the success of the operator's efforts must depend, more or less, on the state of feeling with which he is surrounded. And, it is an admitted law of Human Magnetism, that no one should ever attempt to operate on another, merely to satisfy an idle, or a wicked curiosity. The motive should always be the relief of the patient; or if it be for the benefit of science, the attempt should be made agreeably to the rules which the subject itself prescribes for its own management.

It would be precisely parallel, if one who wished to make money and gratify the marvellousness of the multitude, should carry with him, for public exhibitions, a person laboring under mental derangement, or a raving maniac. But, though we should all wish to understand the philosophy of insanity, should we think it advisable to encourage public exhibitions of a specimen of insanity? Who would, for one moment, tolerate the thought? And so of numerous other departments of medical science. Is it necessary, in order to inform the public mind, that dissections of the human body should be made before promiscuous assemblies? And who would think of charging physicians with a desire to keep the multitude in ignorance, because they should decline traveling with their patients in order to deliver *clinical* lectures to the multitude?

It does not follow that the public should, or that they will, remain in ignorance on this subject, when we object to the manner in which patients have been exhibited through the country. We affirm, that most of the public exhibitions, which we have ever known, have done more hurt than good. True, they may have convinced some, but they have disgusted many more, and set the minds of intelligent people against this subject, and prevented them from giving it that investigation which it would otherwise have received.

What true and enlightened friend of Magnetism will allow himself to believe, that the great mass of mind, the intelligent portion of the community, will ever be convinced of the value of this science by attending these public exhibitions, got up for the purpose of making money? And who can doubt but that, if the real motive in these exhibitions were to convince the public of the truth of Magnetism, these operators would find abundant means for doing so, without resorting to an exposure of a human being in a state of sleep, or mental derangement for this purpose? Why do they not resort to our hospitals, and to the beds of the sick, for the purpose of giving those demonstrations of their magnetic power, which are so much to benefit the *public?* The sick may be found in every neighborhood, who stand in suffering need of the magnetic influence.

But let us not be misapprehended. We do not disapprove of all exhibitions of the magnetic sleep. There are occasions enough for all benevolent and scientific purposes, when the magnetic phenomena may be seen and tested, without exposing patients in the way they have been by many public lecturers heretofore. Indeed, it is a subject which every one should investigate for himself, and this all may do without giving countenance to its abuse by public exhibitions, in the way they have, hitherto, been managed.

MEDICINAL.

CASES.

We had designed to favor our readers with a statement of a large number of cases in our present number; but the want of time prevents us from doing so. We can only give the following, and promise to continue our attention to this part of our work, as circumstances and our other labors will allow.

8 Cholera Morbus.

Mrs. W. was seized most violently with this complaint, July 31, 1842, about 9 o'clock P. M., and it continued, without intermission, till the next day at about twelve, when we were called to see her. She was, then, so much prostrated that she was not able to stand upon her feet, and scarcely to lift her hand to her head. Though she was much set, in her mind, against magnetism, she consented to have the trial made. The relief was *immediate and permanent*. She sunk into a sound magnetic sleep, which continued for six hours. During the sleep we were called away to see another patient; and in our absence she commenced a description of ourself and of various other persons, in different places; and their views and feelings towards us. She described the state of her system, minutely, and has since been perfectly well. What she said was written down by a lady present, and shown to us, on our return. That her descriptions were correct, in many respects, we know; and we should add, that they were made of those concerning whom she could have known nothing, in the waking state.

9 Loss of Voice.

The following may be considered, we think, quite an extraordinary case.

I hereby certify, that it is now more than two years since, from a severe affection in the throat, I lost my voice entirely, and during this time I have been quite indisposed as to my general health; but I have been wholly unable to speak above a *whisper*, until last Tuesday evening, the 26th inst., when the Rev. La Roy Sunderland, putting his hand on my head, enabled me to speak *aloud*. This he has enabled me to do repeatedly, in the presence of numbers of my friends, to their no small astonishment, as well as my own; and this morning I read in a loud voice the whole of the 40th Psalm. I can only say, it seems to be the Lord's doing, and marvelous in my eyes. Mary Ann Boom.

Albany, N. Y., July 28, 1842.

We the subscribers, do hereby certify that we are well acquainted with Mary Ann Boom. Her age is about 25. She has been unable to speak above a *whisper* for some two years, until she was made to speak aloud in our presence by Mr. Sunderland; and this we have seen him do, both when she was asleep and awake.

Nathan Colbon, Jr.
Mrs. Ann Scott.
E. W. Goodwin.

The following account of this case is from the editor of the Albany Tocsin of Liberty:—

Wonderful experiments by Rev. La Roy Sunderland—The voice restored to one who had lost it.

We were privilged one day last week to witness for the first time some of the wonderful effects of Human Magnetism. Having been invited by the Rev. La Roy Sunderland,

editor of the Magnet, to attend and witness an operation upon a lady who, by disease, had lost the use of audible speech.

The lady stated, and so did her friends, that she had not spoken aloud for about two years, and during that time had been afflicted with a most troublesome and incessant hacking cough and tickling in the bronchial tubes, and a part of the time, had been brought very low, and appeared to be wasting away with disease. Since the effect of magnetism has been made upon her, (which was first made by another gentleman,) she has become much more healthy, and from a sick bed from which she was unable to raise herself, she is now able to be about the house cheerful and smart.

But to the incidents of the present occasion—Mr. Sunderland after a few moment's effort put the patient into a good mesmeric sleep: after which, the following are some of the experiments which were made. Mr. S. by touching one of the patient's fingers with the end of his, raised her hand and passed it back and forth, and up and down precisely as the magnetized steel would act upon a needle. By touching a particular part of the head the hands cramped and the muscles became rigid. A few passes of the operator's hand over the arms would instantly release them. I pinched the operator's hand: the patient instantly twinged one of hers, and began to rub it smartly with the other; this was repeated several times, always with the same results. On being asked by Mr. S. what was the matter, the reply was some one had pinched her hand! I then pinched her hand, but without producing the least apparent sensation. I spoke to her, but without appearing to be heard.

After these and other experiments, Mr. S. entered into conversation with her, and told her to speak aloud as she used to do. She instantly obeyed, in an audible voice!! Mr. S requested me then to go out of the room into the hall as far as the front door. I did so. He then requested the patient to call my name aloud; she did so in so audible a tone as to be heard distinctly by me. The following conversation then took place between Mr. S. and the patient:

Mr. Sunderland seated himself at the farther side of the room, some distance from the patient, when the following coversation took place between them, she answering his questions in an AUDIBLE VOICE, so that she was heard distinctly all over the room:—

Q. How long is it since you were able to speak above a whisper.

A. About two years, sir.

Q. During this time, have you ever been able to make yourself heard by any one as far from you as I am now?

A. No, sir.

Q. Did you expect ever to be able to speak aloud again?

A. No, sir.

Q. How long is it since you lost the enjoyment of religion?

A. Six years.

Q. How long is it since you despaired of God's mercy, and thought you had committed the unpardonable sin?

A. About one year.

Q. Do you believe that magnetism may be the means of correcting this error of the mind, as well as the body?

A. Yes, sir.

Q. Has it thus benefitted you?

A. Yes, sir. I now love the Savior—I feel perfectly happy. I never in my life felt more perfectly HAPPY.

Q. Do you think you will regain your voice?

A. Yes, sir, if you would continue to magnetize me.

Q. Do you think I have the power of relieving human suffering in this way?

A. Yes sir. You may, thus do good, both to the souls and bodies of men.

Q. What have your physicians told you about your case?

A. Some of them have said I should never be able to speak aloud again.

Q. Do you think I understand your case?

A. Yes, better than any one else.

A letter from Albany, dated August 5, states, that this lady continued to talk, more or less, aloud, and we have no doubt, if the proper means should be used, but that she would be completely relieved.

10 MONOMANIA.

Despair, is a physical disease, unquestionably. All we know of the mind, appears from the exercise of its different organs in the brain. Monomania, despair, and insanity, in all its forms, arise from the morbid action of different parts of the brain. We have, times without number, produced insanity and madness, and removed these states in a few seconds of time. We do not say, that when these diseases have become chronic, they can be cured at once, or at all, in some cases. But we say what numerous physicians in this city and vicinity will vouch for, when we affirm, that we have frequently produced a state of insanity, and restored the patient again in a few minutes; and we have done this without any injury to the persons on whom we have operated. Since our last, we have found some very conclusive reasons for believing, that there are *particular portions* of the brain, which, when excited, always produce insanity and madness. And another, for instance, produces epilepsy; and so of other derangements of the nervous system. This much we can say, that in a number of instances we have found patients who became insane, or mad, or epileptic, in the excitement of particular portions of the brain, and, from the first, we have been able to control these diseases, or indeed, to bring them upon persons in the somnipathic state.

For the truth of the following account we refer to the persons whose names are attached to one of the certificates which will be found above.

A lady in A——, had been quite zealous in religion, a few years ago, and, during that time, she was known frequently to "lose her strength," as it it is called, when she would appear to be exceedingly happy, and remain hours in a state of apparent catalepsy. But, sometime since, she sunk into a state of mental *despair*, and supposed herself abandoned of God and doomed to perdition.

On putting her to sleep, (she had been magnetised before) we not only removed her despair, but by exciting some of the organs, she declared herself perfectly happy, and what is remarkable, when we excited a particular organ she instantly lost her strength and her limbs became rigid, precisely as she was formerly affected, under religious excitement. Indeed, she declared the two states to be *precisely the same.*

We believe she has not since been in a state of what we should call *despair;* though she seems to be quite desponding at times.

We have stated the facts in this case as they actually occurred; and leave all disposed to draw whatever inferences they please.

CORRESPONDENCE.

FROM PROF. SUNDERLAND.

McKENEREAN COLLEGE,
Lebanon, Ill., June 27, 1842.

Dear Brother.—The subscribers I send you are my pupils, and very intelligent young men. Notwithstanding all the ridicule upon Mesmerism they had seen in the Christian Advocate, and the Western Advocate, they have had the good sense to examine it for themselves. It was a subject that had never been heard of here, until I announced it to my class, about the time I first wrote you to send me something on the subject. But, at this time, every student in college is a firm believer in it, notwithstanding our worthy President denounces it as a humbug, and many of the preachers, who have heard of its wonders (for, of late, there has sprung up considerable on the subject) pronounce it the wost species of infidelity. I have never attempted any experiments, my object has been simply to keep up with the discoveries of others, and in explaining it to my pupils.

I have only endeavoured to make them acquainted with its pretensions and general principles so far as to enable them to judge, for themselves, whether it is worthy of their attention or not.

For myself, I have no doubt but Human Magnetism will, ere long, be ranked among the exact sciences, and a general knowledge of its laws will be considered indespensible to a liberal education. I have, myself, resolved to make it a part of my course of instruction while I remain in my present profession, for I think it quite as important part of physics as terrestreal or electro-magnetism.

Yours, as ever,
JAMES W. SUNDERLAND.

FROM CHAS. D. KASSON, ESQ.

Burlington, Vt., April 20, 1242.

My Dear Sir.—Being one of the readers of the "New York Evening Post," an article in that paper of the 19th March, entitled "Mesmerism," and a communion on the same subject from you, have attracted my attention.

Though an entire stranger, I trust the interest I feel in the subject of those articles, and their tendencies, if the Phenomena be once established, will be a sufficient apology for this obtrusion upon your notice. And my only purpose in addressing you is to throw out some suggestions, the result of my own reflections, (for I have never witnessed the experiments) with a view to the exposition of the principles and causes operating to produce such astounding Phenomena.

Science has done much, within a few years, in the departments of Magnetism and Electro-Magnetism; and by its rapid discoveries promises much more; and it may well be worth the speculation to enquire whether its discoveries, in this respect, are not aproximating to the discovery of the *principle* of *vegetable* and *animal life*, so long hidden in the profoundest mystery. But must it not stop here in its claims as a *cause* of the Phreno-Magnetic Phenomena? That somnolency can be produced by *merely* physical causes, I have no doubt. That paralysis of a member may be, also, produced by physical cause alone, does not admit of doubt, provided the cause be applied to and through the medium of the part affected, as by destroying a nerve by *force;* but, beyond this, I apprehend we must cease tracing any of the phenomena of Animal Magnetism to purely physical causes.

I will, now, say nothing of "*Prevision;*"—but there is "vision without the eye"—clairvoyance—somnolency and paralysis *without contact*, or aught but mental effort—these are spiritual or mental causes, or effects, as the case may be; and I do not conceive it possible to account for them, on material or physical principles, inasmuch as the first two, at least, are manifestly purely mental or spiritual phenomena: and I view them as the same, though we commonly attach a shade of difference to their respective imports.

The *fact* of either is, simply, a state or condition of the mind; and the mere *perception* or *idea* of something *without*, which we ordinarily behold through the medium of the senses, but which, in this case, we behold without the aid of our "senses;" and if such be the *fact*, though the object be very near, it proves as much as though it were an hundred miles off.

It proves the capacity of our spiritual sense, in and of itself, for a realization of everything it is subject to, through our physical part; that all perceptions are but *mere conditions of the mind and spirit*, and that could it only be disencumbered of this "mortal coil," it would be equally and, doubtles, far more capable of *all knowledge;* that pleasure and pain are not physical and do not exist, except in the spiritual idea, and are equally capable of infliction without the aid of the body; (hence the paralysis, which is but another name for the severing of the physical and spiritual connexion;) a disarrangement of a part of the physical man is painless if the mind be absent or diverted from the operation; in short, it proves a capacity in the spirit for an individual existence, independent of the body; and hence a capicity for immortality.

Such appear to be the results of an analysis of the phenomena. Where shall the *cause* be found? They are the effect of *spiritual effort*—of the *controling* operation of *one mind on another*. By an effort of the "*will*" of one, the arm of the other is paralysed—*i. e.* the *mind* of the other is forced to take no cognizance of that part of the body; at other times to be in "communication" with some particular person, or sent roaming its freedom through unwonted haunts. Mind, then, must act on mind unaided by the senses; there must be a capacity for *spiritual communion:*—more than this—*mind* or *spirit* is capable of acting on *matter*—there is a *spiritual power*, and it is this that propels the machine called man.

"God is a spirit;" and His *power* (*spiritual* power) infused animation into the world, which He, by the same power created—a phenomenon similar in *kind* and operation with some of those I am considering.

He created man (meaning the *me*, the *conscious self*, the *spiritual man*) in his own "*image*" and "*likeness*," and breathed into him a *life*, or *soul*. You have alluded to "swoons" in cases of religious excitement. I see no physical *cause* here, though there be physical *effect*. The *spirit*, in its struggle for communion with its native source, in a measure, departed from the body; mingled in the great mass of mind or spirit—it ceased, in a degree, to animate the body—it communed with its great original. Is not prayer, after this wise, made efficacious; and, by the *necessary law* of spiritual operations, does it not possess a *re-productive power;* and when *answered* is it aught but the necessary operation of this imperative law, established by the great *spiritual power* that fills all space? Is it not thus, that mere *thoughts*, when they attain to the "*higer reason*," become "*absolute*," a part of the *self*—a species of a new *creation*, and, mingling with the mass, have, in and of themselves, an *influence* on mankind, are *infectious*, so to speak? Many, doubtless, as well as myself, have experienced that mental phenomenon, from which some of the ancient philosophers drew an argument in favor of the transmigration of souls. It is this. I have often had a *present scene*, which I *knew* was altogether novel, and I had never witnessed before, at once rise up before me like a thing of *remembrance* and of *former experience;* and though the scene be constantly changing and developing itself, each successive step was but the *repetition of my former experience*. So, too, of localities, which I had never before witnessed. Here is "Prevision" and "vision without the eye;"—whence came it, and was it any thing but the mind unconsciously *going out*, previously, and observing the locality, in the one case, and, thus, receiving the *latest knowledge*, which is awakened by a corresponding exhibition through the senses, into *consciousness?* Is not all *power—i. e.*—the genuine *idea* of *power*—spiritual? And is not the Phreno-Magnetic phenomena purely *spiritual?* From the connexion between the spiritual and physical man, the mind of the operator may be *aided* in getting the *control* of the patient's mind, by the *strictly magnetic influence* imparted from his body to that of the patient, so as, measurably, to allay that physical excitement, which

would naturally attract the subjects mind to itself or its person; but, I apprehend, the *control* of the *mind*, or the *mental condition*, is the real important *fact*, and that the other is only *auxiliary* to the operator in the *exercise* of his *mental power*.

I am aware of the difficulty of giving you hardly a notion of my meaning in the space allotted by one sheet, and that in passing over a large field, so rapidly, many steps in the reasoning are necessarily left to be filled by your own reflections. The subject, I consider, is of great importance as it respects its philosophical tendencies, and, in my view, the phenomena afford strong proof of the truth, if need be, of revelation. But if it be limited in its causes to a mere *electric* or *magnetic* influence, while these are considered, by many, as *matter*, is there not danger of falling into the schools of materialism, or sensualism, the foster-mothers of infidelity?

What I have written I rather intend as mere *suggestions* than *convictions* of my own mind, and as the outline of a *theory* in the absence of *experimental knowledge*, for I am not ready to adopt it fully until I shall have had more time to investigate it than the arduous duties of a laborious profession (the law) will at present allow me. I trust, therefore, you will deem what I have written as intended for *your own private use*, as my object is nothing more than to suggest to your own consideration, a train of thought (in which, very likely, I am already anticipated by you) which may lead to the development of truth, and for truth's sake.

I am sir, with the highest respect,
Your obedient servant,
CHAS. D. KASSON.

LITERARY NOTICES.

FACTS IN MESMERISM; and Thoughts on its Causes and Uses. By Charles Caldwell, M. D. Louisville, Ky. Prentice & Messinger, 1842, 8vo. pp. 132.

Probably no man in the South or West enjoys a higher reputation as a physician, than Dr. Caldwell. And, when we consider his age, and the relation he has so long held to the medical profession at the West, it would seem somewhat remarkable that one of his years should have embraced, so ardently, as he seems to have done, the views set forth in this work. Indeed, we have not seen a more enthusiastic believer, scarcely, than the doctor; and we cannot doubt, but his frank avowal of the convictions which have been forced upon his own mind, in favor of Human Magnetism, will do much toward commending this subject to the attention of the profession, generally.

LOUIS CORNARO: The Discourses and Letters of Louis Cornaro, on a Sober and Temperate Life; with a Biography of the Author, by Piero Maroncelli, and Notes and an Appendix by John Burdell. New York: Collins, Keese & Co., 254 Pearl-street. 1842. 18mo., pp. 228.

Although the discourses of this far-famed apostle of temperance have been read with great interest in different languages, for more than two hundred and fifty years, yet we believe this is the first edition that has ever appeared in English, which could be said to be free from important errors. The former editions printed in this country were mere republications of an English translation which appeared in 1768, and which contained only four of his "Discourses," and its account of the author was deficient in every thing but errors.

In order to have the present edition correct, and to make it as acceptable as possible, the editor procured a biography of Cornaro, from the pen of an Italian gentleman of high literary merit, who was every way qualified for this work.

The publication of these Discourses is an acceptable service at the present time to the cause of Temperance and Science. Here we have a most interesting account of one who brought himself well nigh to the grave by the indulgence of his appetite; but who, on seeing the danger to which he was exposed, at once set himself upon a course of temperance, even after he had crossed the meridian of life. For thirty years, it is said, Cornaro lived on only fourteen ounces of food per day, and his last Essay was actually written at the advanced age of ninety-six!

ELECTRICITY.

ELECTRICITY.

In the articles we have written on the subject of human magnetism, we have observed that Electricity, Galvanism, add Magnetism, are the same substance, (if substance they may be called,) in different, or modified forms. Of this we have had many clear and convincing demonstrations. Hence, whatever tends to explain the laws of one will shed light upon the others; and as our work is designed for those who are not supposed to have access to the larger scientific works, we give the following familiar account of some of the common electrical phenomena, with which all should be familiar. It is from Wesley's Philosophy, and was written some fifty years since. It is worthy of notice, that he so long ago stated it as highly probable, that Electricity was the "general instrument of *all motion in the universe*," an assumption which will, doubtless, soon be admitted and believed by the students of nature every where.

From a thousand experiments it appears, that there is a fluid far more subtile than air, which is every where diffused through all space, which surrounds the earth, and pervades every part of it; and such is the extreme fineness, velocity, and expansiveness ef this active principle, that all other matter seems to be only the body, and this the soul of the universe. This we might term *elementary fire;* but that it is hard for us to separate the ideas of fire and burning, although the latter is in reality but a preternatural and violent effect of the former. It is *highly probable that this is the general instrument of all the motion in the universe;* from this pure fire (which is properly so called) the vulgar culinary fire is kindled; for in truth there is but one kind of fire in nature, which exists in all places and in all bodies; and this is subtile and active enough, not only to be under the great cause, the secondary cause of motion, but to produce and sustain life throughout all nature as well in animals as in vegetables. To this effect the learned bishop of Cloyne observes: 'The vital flame is supposed to be the cause of all the motions in the body of man, whether natural or voluntary; and has not fire the same force to animate throughout, and actuate the whole system of the world? Cherishing, heating, fermenting, dissolving, shining, and operating in various manners, as various subjects offer to employ, or to determine its force. It is present in all parts of the earth and firmament, though latent and unobserved till some accident produces it into action, and renders it visible in its effects.'

This great machine of the world, requires some such constant, active, and powerful principle constituted by its Creator, to keep the heavenly bodies in their several courses, and at the same time give support, life, and increase, to the various inhabitants of the earth. Now as the heart of every animal is the engine which circulates the blood through the whole body, so the sun, as the heart of the world, circulates this fire through the whole universe; and this element is not capable of any essential alteration, in-

crease, or diminution. It is a species of itself, and is of a nature totally distinct from that of all other bodies: that this is absolutely necessary both to fixed common fire, and to sustain the life of animals, it seems may be learned from an easy experiment. Place a cat, together with a lighted candle, in a cold oven, then shut the door close, having fixed a glass in the middle of it; and if you look through this you may observe at one and the same instant, the candle goes out, and the animal dies: a plain proof that the same fire is needful to sustain both culinary fire and animal life, and a large quantity of it. Some doubtless pervades the oven-door; but not enough to sustain either flame or life. Indeed, every animal is a kind of fire-engine. As soon as the lungs inspire the air, the fire mingled with it is instantly dispersed through the pulmonary vessels into the blood: thence it is diffused through every part of the body, even the most minute arteries, veins, and nerves. In the meantime, the lungs inspire more air and fire, and so provide a constant supply. The air seems to be universally impregnated with this fire, but so diluted, as not to hurt the animal in respiration. So a small quantity of liquor dropped in water, may be friendly to human nature, though a few drops of the same liquor, given by themselves, would have occasioned certain death: and yet you cannot conceive one particle of the water, without a particle of the medicine. It is not impossible, this may be one great use of air, by adhering so closely to the elementary fire, to temper and render salutary to the body what would otherwise be fatal to it. To put it beyond dispute, that this fire is largely mixed with the air, you may make the following experiment: Take a round lump of iron, and heat it to a degree called welding heat; take it out of the fire, and with a pair of bellows blow cold air upon it. The iron will then as effectually melt, as if it were in the hottest fire. Now when taken out of the forge, it had not fire enough in it to conquer the cohesion of its parts: but when this fire is joined with that which was mixed with the air, it is sufficient to do it. On the same principle we account for the increase of a coal or wood fire by blowing it. And let none wonder that fire should be so connected with air, as hardly to be separated. As subtile as fire is, we may even by art attach it to other bodies; yea, and keep it prisoner for many years, and that either in a solid or a fluid form.—An instance of the first we have in steel; which is made such, only by impacting a large quantity of fire into bars of iron. In like manner we impact a great quantity of fire into stone, to make lime. An instance of the second kind we have in spirits, wherein fire is imprisoned in a fluid form. Hence common spirits will burn all away. And if you throw into the air spirits rectified to the highest degree, not one drop will come down again, but the universal fire will take hold of and absorb it all. That this fire subsists both in air, earth, and water; that is diffused through all and every part of the universe, was suspected by many of the ancient naturalists, and believed by the great Sir Isaac Newton. But of late years it has been fully demonstrated; particularly by Mr. Stephen Gray, a pensioner at the Charter-house, who some years since presented to the Royal Society an account of many experiments he had made, whereby this subtile fluid became clearly perceptible both to the sight and feeling.—Because the glass tube, by means of which those experiments were made, was observed, when rubbed, to attract straw and other light bodies, (a known property of amber, called in Latin electrum,) these experiments were termed electrical; a word which was soon affixed to that subtile fluid itself, and every thing pertaining to it; but improperly enough, seeing the attracting (or seeming to attract) straws and feathers, is one of the most inconsiderable of all the effects wrought by this powerful and universal cause. It was afterward found, that a glass globe was on some accounts preferable to a glass tube; particularly as it was less labour to turn the one for some hours together, by means of a small wheel, in the meantime rubbing it with a dry hand, or a little cushion, than to rub the tube for a long time. It was likewise observed, that a greater quantity of ethereal fire might be collected by this means than the other. I say collected; so that fire is no more created by rubbing, than water is by pumping. The grand reservoir thereof is the earth, from which it is diffused through all the other parts of common matter. Accordingly, in these experiments, the globe rubbing against the cushion, collects fire from it; the cushion receives it from the frame of the machine from the floor, but if you cut off the communication with the floor, no fire can be produced, because none can be collected. In the year 1746, M. de Muschenbroek, professor of natural philosophy at Leyden, was led by casual experiment into many new discoveries. These were chiefly made by means of a large but thin glass vial; the best way to prepare which, is to coat it with thin lead; to line it on the inside with gold-lead, to within two inches of the top, and to fasten some tinsel fringe to the bottom, or to the end of the wire within the vial, so as to touch the gold lining. By this wire going through the cork, the vial is hung on any metallic body, which communicates by a wire with the globe or tube. This metallic body has been termed, the prime conductor, as it conducts or conveys the fire collected by the tube or globe, either into the vial, or into any other body communicating therewith. But all bodies are not capable of receiving it. There is, in this respect, an amazing difference between them.—The excrements of nature, as wax, silk, air, will not receive the ethereal fire, neither convey it into other bodies; so that whenever in circulating, it comes to any of these, it is at a full stop. Air itself is a body of this kind, with great difficulty either receiving or conveying this fire to other bodies; so are pitch and rosin, excrements, as it were, of trees. To these we may add glass, amber, brimstone, dry earth, and a few other bodies. Those have frequently been styled, *electric per se*, as if they alone contained the electric fire; an eminently improbable title, founded on a palpable mistake. From the same mistake, all other bodies which easily receive and readily convey it, were termed non-electrics, on a supposition, that they contained no electric fire, the contrary of which is is now allowed by all. That this fire is inconceivably subtile, appears from its penetrating even the densest metals, and that with such ease, as to receive no perceptible resistance. If any one doubt whether it pass through the substance, or only along the surface of bodies, a strong shock taken through his own body, will prevent his doubting any longer. It differs from all other matter in this, that the particles of it repel, not attract each other; and hence is the manifest divergency in a stream of electrical effluvia. But though the particles of it repel each other, yet are they attracted by all other matter. And from these three, the extreme subtilty of this fire, the mutual repulsion of its parts, and the strong attraction of them by other matter, arises this effect, that if a quantity of electric fire be applied to a mass of common matter of any bigness or length, which has not already got its quantity, it is immediately diffused through the whole. It seems, this globe of earth and water, with its plants, animals, and buildings, have diffused through their whole substance, just as much of this fire as they will contain; and

this we may term their natural quantity. But this is not the same in all kinds of matter; neither in the same kind of matter in all circumstances. A solid foot of one kind of matter, as glass, contains more of it than a solid foot of another kind; and a pound weight of the same kind of matter, when rarefied, contains more than it did before.

We know that this fire is in common matter, because we can pump it out by the globe or tube; we know that common matter has near as much of it as it can contain; because if we add a little more to any portion of it, the additional quantity does not enter, but forms a kind of atmosphere round it. On the other hand, we know that common matter has not more of it than it can contain; otherwise all loose portions of it would repel each other; as they constantly do, when they have such atmospheres. Had the earth, for instance, as much electric fire, in proportion, as we can give to a globe of iron or wood, the particles of dust, and other light matter, would not only repel each other, but be continually repelled from the earth: hence the air being constantly loaded therewith, would be unfit for respiration. Here we see another occasion to adore that wisdom, which has made all things by weight and measure. The form of every electric atmosphere is that of the body which it surrounds; because it is attracted by every part of the surface, though it cannot enter the substance already replete. Without this attraction, it would not remain round the body, but dissipate into the air. The atmosphere of an electrified sphere is not more easily drawn off from any one part of it than from the other, because it is equally attracted by every part: but it is not so with bodies of other figures. From a cube it is more easily drawn off at the corners than the sides; and so from the corners of any bodies of any other form, and most easily from the sharpest corners: for the force with which an electrified body retains its atmosphere, is proportioned to the surface on which that atmosphere rests. So a surface four inches square retains its atmosphere with sixteen times the force than one of an inch square does. As in pulling the hair from a horse's tail, a force insufficient to pull off a handful at once, could easily pull it off hair by hair: so though a blunt body cannot draw off all the atmosphere at once, a pointed one can easily draw it off, particle by particle. If you would have a sensible proof, how wonderfully pointed bodies draw off the electric fire, place an iron sheet of four inches diameter, on the mouth of a dry bottle; suspend over it a small cork ball by a silken thread, just so as to rest against the side of the shot; electrify the shot, and the ball will be repelled four or five inches from it; then present to the shot, six or eight inches off, the point of a sharp bodkin; the fire is instantly drawn off, so the repulsion ceases, and the ball flies to the shot. But a blunt body will not produce this effect, till it is brought within an inch of the shot. If you present the point of the bodkin in the dark, you may see sometimes at a foot distance, a light gather upon it like a glow-worm, which is manifestly the fire it extracts from the shot. The less sharp the point is, the nearer it must be brought before you can see the light; and at whatever distance you see the light, you may draw off the electric fire.

To be convinced that pointed bodies throw off, as well as draw off the fire, you may lay a long sharp needle on the shot: it cannot then be electrified, so as to repel the ball, because the fire thrown upon it continually runs off at the point of the needle; from which in the dark you may see such a stream of light, as in the preceding instance. While the electric fire, which is in all bodies, is left to itself, undisturbed by any external violence, it is more or less dense, according to the nature of the body which it is in. In dense bodies it is more rare; in rare bodies it is more dense: accordingly every body contains such a quantity of it, rare or dense, as is suitable to its nature. And there is some resistance to every endeavour of altering its density, in the whole of any body, or in any part of it; for all bodies resist either the increase or diminution of their natural quantity; and on the other hand, when it has been either increased or diminished, there is a resistance to its return to its natural state. With regard to the different resistance made by different bodies, in either of these cases, it is an invariable rule, that glass, wax, rosin, brimstone, silk, hair, and such bodies, resist the most; and next to these, the air, provided it be dry, and in a sufficient quantity; that this resistance is least in metals, minerals, water, quicksilver, animals, and vegetables, which we may rank together, because the difference in their resistance is very inconsiderable; and that in these bodies the resistance is greater, when their surfaces polished, and extended in length, than when their surfaces are rough and short, or end in sharp points. When a body has more electric fire forced into it than it has naturally, it is said to be electrified positively. When part of the natural quantity is taken away, it is said to be electrified negatively. Now when an iron bar is negatively electrified, the fire drawn out does not go in again as soon as the experiment is over, but forms an atmosphere round it, because of the resistance it finds in its endeavour to dilate itself, either into the air or into the bar: and when it is electrified positively, the same kind of atmosphere is formed, by the fire accumulated upon it. Whether, therefore, bodies are electrified negatively or positively, and remain so when the experiment is over, there are similar atmospheres surrounding them, which will produce similar effects. But we can electrify no body beyond a certain degree; because when any one is electrified to that point, it has no atmosphere round it sufficiently strong to balance any power that endeavours to electrify it farther; nor is the electric fire, either from the tube or globe, able to force its way through this. And in the ordinary course of nature, this subtile, active fluid, which not only surrounds every gross body, but every component particle of each, where it is not in absolute contact with its neighbouring particle, can never be idle, but is ever in action, though that action be imperceptible to our senses; it is ever varying its condition, though imperceptibly, in all parts of all bodies whatever, and electrifying them more or less, though not so forcibly as to give sensible signs of it. All bodies then, and all their component particles, when in their natural situation, have round their surfaces, where they are not in absolute contact with other surfaces, an imperceptible atmosphere, sufficient to balance the smaller force with which they are attacked, every way similar to the perceptible atmosphere of bodies forcibly electrified. In these imperceptible atmospheres is placed the power which resists their being electrified to a higher degree than they are naturally: and this power lies in the elasticity of the subtile fluid, every where dispersed both round all bodies and in them. Glass is very difficultly electrified, which proves it to have a very dense electric atmosphere. Metals are easily electrified; consequently they are rare, and therefore weakly resisting atmospheres. But as heat rarefies all bodies, so if glass be heated to a certain degree, even below melting, it will give as free a passage to the electric fire as brass or iron does, the atmosphere round it being then rendered as rare as that of metals; nay, when melted, it makes no more resistance than water: but its resistance increases as

it cools; and when it is quite cold, it resists as forcibly as ever. Smoothly-polished wax resists as much as glass: but even the smaller heat raised by rubbing, will render its atmosphere as rare as that of metals, and so entirely destroys its resistance. The same is true of rosin and brimstone. Even the heat arising from friction, destroys the resistance which they naturally make to being electrified; a strong proof, that the resistance of all bodies thereto is exerted at their surfaces, and caused by an electric atmosphere of different densities, according to different circumstances. Most experiments will succeed as well with a globe of brimstone, as with one of glass; yet there is a considerable difference in their nature. What glass repels, brimstone as also rosin attracts. Rubbed glass emits the electric fire; rubbed brimstone, rosin and wax, receive it.—Hence if a glass globe be turned at one end of a prime conductor, and a brimstone one at the other, not a spark of fire can be obtained; one receiving it in, as fast as it is given out by the other. Hence also, if a vial be suspended on the prime conductor, with a chain from its coating to the table, and only one globe turned, it will be electrified (or *charged*, as they term it) by twenty turns of the wheel: after which it may be discharged, that is, unelectrified, by twenty turns of the other wheel. The difference between *non-electrics*, vulgarly speaking, and *electrics per se*, is chiefly this: a *non-electric* easily suffers a change, in the quantity of fire it contains. Its whole quantity may be lessened by drawing out a part, which it will afterward resume: but you can only lessen the quantity contained in one of the surfaces of an *electric;* and not that, but by adding at the same time an equal quantity to the other surface: so that the whole glass will always have the same quantity in its two surfaces; and even this can only be done in glass that is thin; beyond a certain thickness, we know no power that can make this change. The ethereal fire freely moves from place, in and through the substance of a *non-electric;* but through the substance of an electric it will by no means pass. It freely enters an iron rod, and freely moves from one, and to another, where the overplus is discharged; but it will not enter or move through a glass rod; neither will the thinnest glass which can be made, suffer any particle of it entering one of its surfaces to pass through the other. Indeed, it is only metals and liquids that perfectly *conduct*, or transmit this fire. Other bodies seem to conduct it, only so far as they contain a mixture of these; accordingly, moist air will conduct it, in proportion to its moistness; but dry air will not conduct it at all; on the contrary, it is the main instrument in confining any electric atmosphere to the body which it surrounds. Dry air prevents its dissipating (which it presently does when *in vacuo*) or passing from body to body. A clear bottle, full of air instead of water, cannot be electrified; but exhausted of air, it is electrified as effectually as if it was full of water: yet an electrical atmosphere and air do not exclude one another; for we breathe in it freely, and dry air will blow through it, without altering it at all. When a glass vial is electrified, whatever quantity of fire is accumulated on the inner surface, an equal quantity is taken from the outer. Suppose, before the operation begins, the quantity of fire contained in each surface is equal to twenty grains; suppose at every turn of the globe one grain thrown in; then after the first stroke there are twenty-one within, nineteen only without, after the second, the inner surface will have twenty-two, the outer but eighteen: and so on, till after twenty strokes, the inner will have forty, the outer none: and the operation ends; for no power or art of man can throw more on the inner surface, when no more can be taken from the outer. If you attempt to throw more, it is thrown back through the wire, or flies out in cracks through the vial. The equilibrium cannot be restored in this vial, but by a communication formed between the inner and outer surface. If you touch these by turns, it is restored by degrees; if both at once, it is restored instantly; but then there is a shock occasioned by the sudden passing of the fire through the body, in its way from the inner to the outer surface; for it moves from the wire to the finger, (not from the finger to the wire, as is commonly supposed,) thence it passes through the body to the other hand, and so to the other surface. The force with which this check may be given, is far greater than one would imagine: it will kill rats, hens, or even turkeys, in a moment; others, that are not killed, it strikes blind. It will invert the polarity of a compass, and make the north point turn to the south: at the same time the ends of needles are finely blued like the spring of a watch. It will melt off the heads and points of pins and needles; and sometimes the whole surface of the needle is run, and appears as it were blistered, when examined by a magnifying glass. It will melt thin gold or silver, when held tight between two panes of glass, together with the surface of the glass itself, and incorporate them in a fine enamel. Yea, a strong spark from an electric vial makes a fair hole through a quire of paper doubled; which is thought good armour against the push of a sword, or even a pistol-bullet. And it is amazing to observe, in how small a portion of glass a great electrical force may be. A thin glass bubble, about an inch diameter, being half filled with water, partly gilt on the outside, when electrified gives as strong a shock as a man can well bear: allowing then, that it contains no more fire after charging than before, how much fire must there be in this small glass! It seems to be a part of its very substance. Perhaps, if that fire could be separated from it, it would be no longer glass. It, in losing this, loses its most essential properties, its transparency, brittleness, and elasticity.

THE NERVOUS INFLUENCE.

In our first number we alluded to an interesting work, published in Paris, some years ago, intitled:—

"Inquiry into the Motive and Effects of the Nervous Influence; and its connexion with the Vital Moral, and Intellectual Operations."

It perports to have been written by a lady, the name is not given. In its approaches to truth, on the subject of Human Magnetism, it bears a striking resemblance to a pamphlet published by Dr. Rush, some years ago, the tittle of which we have forgotten, but which went far towards the discovery of what is now known to be true, by all who are familiar with the assumptions of Dr. Gall.

As there are many valuable remarks on the functions of the nervous system, we conclude our readers will be gratified in seeing a few extracts from it, in the Magnet.

INTEREST AND IMPORTANCE OF THE SUBJECT.

The functions of the brain and nerves form the most interesting part of the animal economy—as obscure and wonderful as they are important, the mystery in which they are enveloped stimulates our curiosity; and the power of their influence over our nature both moral and physical, gives a value to every fact, connected with their operations. The movements of the animal frame; the execution of the functions indispensible to life; the capability of thinking, of acting, and of feeling are all dependent upon the activity of the unknown principle that holds its mysterious empire in the brain and nerves. Here, it should

seem, lies the internal spring which sets the whole animal machine in motion: the effects of its derangement are general, and the suspension of its action arrests not only the bodily but the mental functions. It is in the nervous system that we must seek the point of contact between the soul and the body, and it is probably to this source that the morbid affections of both must ultimately be traced. That it is always affected, either primarily or secondarily, when any of our functions are deranged, is very apparent; therefore, whatever can throw any new light upon this important class of operations, is likely to be of service in diminishing the moral and physical evils to which we are liable. I do not of course imagine that I can cast even a feeble ray across this mass of obscurity; but as the subject, in whatever manner it may be treated, can never be wholly devoid of interest, I shall present the observations which I have noted down, during some years' attentive examination of my own internal phenomena, together with the various hypotheses which they have suggested. I shall begin by offering some conjectures upon the nature of the agent that is the immediate cause of motion and sensation, and I shall afterwards endeavor to trace the extent of its influence on the feelings and powers of the mind. The latter part of the subject will be independent of the former, therefore the prejudice that exists against the one need not operate against the other. I am aware of the ridicule that is attached to every voyage of discovery into the metaphysical world, particularly in search of a nervous agent, but the progress of knowledge has so long been favorable to my views, that I will at last venture to anticipate, by argument, what I hope may hereafter be effected by experiment.

GENERAL DISTRIBUTION AND FUNCTION OF THE NERVES.

The various functions of the nervous system, which show themselves more numerous and important, as they are more closely investigated, will appear more distinctly from a general view of the distribution of the nerves, wherein I have adopted the arrangement of an eminent *French* anatomist, because it is the most clear and systematic, and therefore the best suited to my purpose.

DIVISION OF THE NERVOUS SYSTEM.

The nervous system may, generally speaking, be divided into two parts: the one placed in a certain degree under the control of the mind, is its immediate agent, while it has at the same time some share in the performance of the vital functions. The other is appropriated exclusively to the purposes of life. The first, Bichat calls the nervous system of the *animal life* —it has the brain and spinal marrow for its centre, and its nerves pursue a direct course of the organs of sense, of locomotion, and of the voice. The other, which he calls the nervous system of the *organic life*, is distributed to the organs of digestion, circulation, secretion, respiration etc. Its nerves are irregular in their course, and do not, like those of the former, correspond in two halves of the body. They have their centres in the *ganglia*, which are small bodies, perhaps convolutions of nerves, whose office is unknown. The *organic* is derived from the *animal* system, and perhaps the ganglia, placed along the spine and forming with their communicating nervous branches, the great sympathetic nerve, mark the respective boundary of each.

The nerves of the organic life are not under the influence of the will, neither do they transmit sensation, except when the sensibility of a part is highly exalted by irritation, and then we become sensible of their action.* One part of the *animal* nervous system is bestowed upon the internal organs, for what reason is unknown, as they are not under the influence of the will: this has suggested to me an hypothesis which will be explained in the chapter on the mental operations. The natural stimulus of the nerves and muscles of the *animal life*, is the will; the natural stimulus of the nerves and muscles of the *organic life* consists of the fluids adapted to each organ, as the blood in the heart, the aliment in the stomach, etc.; but they are susceptible of excitation from other causes in both systems.

FUNCTIONS OF THE ANIMAL NERVOUS SYSTEM.

The office of the nervous system of the *animal life* is to minister to the mind, and to carry on certain of the functions indispensable to the continuance of life.

VOLITION AND SENSATION:

The connection of this part of the nervous system with the mind brings us to the very verge of the material world, and exhibits the most mysterious, as well as the most wonderful operations of our nature. Between the determination of the *will* and its visible effects on the *voluntary muscles*, an intermediate action takes place, and the operation of an intermediate agent is required. Between the percussion received by the *organs of sense* from external matter and the effects produced thereby on the mind, an intermediate action is also required. It appears that, in both cases, this immediate operation takes place in the brain and nerves, for, if the nerves of a voluntary muscle or of an organ of sense, be compressed or divided, the communication between the mind and the organ instantly ceases, and if the functions of the brain are interrupted, the communication between the mind and *all* these organs is immediately suspended; and it can no longer excite motion, nor become sensible of the action of external matter. We may therefore conclude that we *receive* and *produce* impressions, in short, that we hold communication with the external world, by means of some action that takes place in the nervous system.

INFLUENCE OF THE ANIMAL NERVES ON THE VITAL OPERATION.

The action of the brain, and of the animal nerves has also a large share of influence on the vital functions: the latter contributes both to the production of animal heat and of chemical changes, and the death of the brain causes a cessation of the phenomena of respiration, and also a total annihilation of animal heat, which can no longer be evolved, even if the action of the heart and lungs be artificially prolonged.

FUNCTIONS OF THE ORGANIC NERVES.

The functions of the nerves of the *organic life* are very mysterious, and their action differs in many respects from that of the animal nerves.

But the analogy that exists in their mode of operation is made evident from the painful sensations caused by internal irritation, being similar in their nature to those conveyed by the nerves of the animal life.

ON THE NATURE OF THE NERVOUS INFLUENCE.

Having given this brief sketch of the distribution of the nerves in general, I will proceed to explain my notions respecting the nature of the nervous influence. It appears that the action which takes

*The muscular system can, like the nervous, be divided into the animal and organic.

place in the nervous system is indispensable to the performance of the mental operations on the one hand, and of the vital operations on the other. Upon considering the subject, I can find no reason for supposing that a material agent is incapable of producing the phenomena attributable to nervous causes, and I am inclined to think that the advances made in chemistry, anatomy and physiology will, in time, enable us to explain the Arcanum without having recourse to a mysterious and unknown principle. The late discoveries in Chemistry have confirmed me in an opinion which I had previously entertained respecting the nature of this agent, and have enaled me to develope the following hypothesis, in which it will be seen that I have ascribed the effects which it exhibits to a material cause.

The nerves are, in my opinion, the vehicles of the nervous power, and not the active agents in the nervous operations. It is acknowledged that the texture, the situation and the inelastic nature of the nerves does not afford any reasonable ground for attributing their effects to vibration or oscillation, and we can hardly ascribe such powers as they exhibit, to the soft and pulpy substance which composes their medulla. The substance of the brain is the same: in fact it is a continuation of the spinal marrow; yet if the brain be irritated directly it causes no pain, because the irritation has not been first transmitted through the nerves—which confirms me in the opinion that the power of producing sensation does not reside in the nervous substance It is known that sensation is caused by some action continued along the course of a nerve, and transmitted through the brain to the mind, the co-operation of the brain being made evident by this circumstance, that if a nerve is divided, the part beyond the division has no sensibility, while the part next the brain still conveys the impression to the mind. The nature of this nervous action, and the existence of an agent foreign to the substance of the nerves, form the subject of this chapter. The nerves do not appear adapted to the reception or to the flux and reflux of fluids, as they are not hollow tubes: there is one fluid however, which requires no tube to contain it, which is subtle, powerful, and penetrating, and which produces effects on the dead muscle (as long as it retains its warmth) analogous to those which the nervous influence produces on the living muscle.

This is the electric fluid, and though the notion that the nervous power is of an electric nature, has often been ridiculed, the progress of chemical knowledge seems to have increased, instead of having diminished, the probability of such an hypothesis, and a further insight into the mechanism and operations of the animal frame may shew us, that the powers which electricity is found to possess, can operate within the living body as well as upon dead matter; and that it is by the most active, penetrating and powerful of all material agents, that the most wonderful and complicated work in the Creation is set in motion, while the direct action of the immaterial part is upon a substance so potent, subtle, and etherial, that we may consider it, as it were, on the very confines of matter. We now find that electricity is not only capable of causing contraction in the muscles, but that it is indispensable to the production of heat and chemical changes; now all these operations necessarily take place in the animal body, and instantly cease in any organ in which the nervous action is interrupted. Heat cannot be produced without the aid of electricity, and the preservation of the vital principle depends upon the retention of some portion of heat in the animal body—its production is the last function that ceases, and if it be once totally extinct no means can restore suspended animation.

SOURCE OF THE NERVOUS INFLUENCE.

The recent discoveries in chemistry to which I have alluded above, have even shown us (in my apprehension) the very source whence we derive a constant supply of the nervous fluid. If it is a fluid, subject to exhaustion and renovation, it must necessarily be supplied from some source, which, to answer the desired purpose, must be constant, regular and inexhaustible. The discovery that electricity is naturally combined with vital air does, I think, give the clue to this arcanum: the conjecture that the subtle agent which carries on the animal and organic functions is contained in the pure, light, and elastic substance which we continually inspire, is not a mere supposition, but a conclusion which I have drawn from the phenomena exhibited in the act of respiration, from the effects resulting from the presence orabsence of vital air in the blood, and from some other considerations which I shall mention.

VITAL AIR.

The importance of vital air is sufficiently ascertained by common experience, and its name implies that it is indispensable to the continuance of life. That internal mysterious property which we call the vital principle, does not of itself appear capable of carrying on the vital operations, for when the material agents are removed, where is its power? The action of a constant stimulus, supplied by external matter, is evidently required for this purpose. When deprived of it, the animal machine ceases to exercise its functions and the vital principle becomes extinct. This stimulus is contained in the air we breathe: if respiration be arrested beyond a certain time, even in the body, the most perfectly organized, in the prime of life, and in all the glow of health, loss of sense and motion ensues and death inevitably follows.

EFFECTS OF VITAL AIR.

We find that the effects of vital air are to impart certain properties to the blood, by which it is enabled to excite the muscles to contraction, to give sensibility to the nerves,* activity to the brain, and due nourishment to the body, that it causes the production of animal heat, and that the blood which has not been subjected to its operation, carries debility and death to all the organs, and produces an instantaneous cessation of the function of the brain by its contact. These effects have been hitherto attributed to the oxygenation of the blood, in the act of respiration, because the air which is deprived of oxygen, cannot bring it into the state required for these purposes. I much doubt whether this principle alone would be capable of imparting such wonderful properties to the blood, even if it were carried into the system; but it is in fact expelled from the lungs, in the form of carbonic acid. Oxygen seems perfectly competent to the office of purifying the blood, by carrying off its superfluous carbon,* and this is doubtless necessary to prepare it for the office of nourishing the body; bnt the mere abstraction of carbon does not appear sufficient to qualify it for the purposes above enumerated: suppose the black

*Sensibility is greatly dependent upon a sufficient circulation of *arterial* blood to the extremities of the nerves, as well as to the brain. Those parts of the body through which red blood does not flow are possessed of little or no feeling, while, on the contrary, those that are extremely vascular are endowed with acute sensibility.

*Carbon exists in a greater proportion in blood than in organized animal matter; the blood therefore, after supplying its secretions, becomes loaded with an excess of carbon, which is carried off by respiration.—(Conversations on Chemistry, by Mrs. Marcet.)

blood to be unfit for the office of nourishment, the want of support does not occasion instantaneous death, which is the consequence when the uncharged fluid comes in contact with the brain. A sudden cessation of the animal functions is more likely to be caused by the loss of excitation; now the known properties of oxygen do not warrant the conclusion that it is capable of throwing the whole living machine into action, and the contact of oxygen with a muscle does not even excite or accelerate its contractions. If the direct application of oxygen to a muscle does not cause it to contract, nor even produce much inconvenience to the animal in the experiment, I do not see how the mere addition of oxygen to the blood should enable it to excite the muscles and to give sensibility to the nerves: in the act of respiration however, it appears that the contractions of the muscles are affected, and Dr. Huygens ascertained, that the pulse might be lowered or accelerated according to the quantity of oxygen inspired. Hence I should conclude that the organs of circulation are affected by something which the oxygen conveys in the act of respiration, and which is disengaged by the action of the lungs in that operation. Let us consider what is chemically combined with oxygen.

PRINCIPLE COMBINED WITH OXYGEN.

Sir Humphrey Davy has found that the oxygen gas which we inspire, owes its elasticity to electricity, with which it is combined: and that air which has lost its elasticity, is unfit either to support life, or to produce combustion: I am therefore inclined to believe, that both life and animal heat, are, like combustion, dependent upon the same agent which gives elasticity to the air, and that oxygen is only the vehicle by which this powerful fluid, namely, electricity, is conveyed into the system.

ARGUMENTS.

About ten cubic inches of oxygen are taken into the lungs at every inspiration, of which only one eighth disappears, and is converted partly into carbonic acid and partly into water by its combinaton with the hydrogen of the blood: yet the whole of the air is respired in a state unfit for the support of life and combustion: the oxygen must therefore have lost in this inspiration the principle to which it owes the power of supporting life and heat. This is electricity; and I conclude that while the oxygen is expelled from the lungs, the electricity is retained. Then how are we to account for the various effects attending an increase or diminution of the proportion of oxygen inspired, in medical experiments, when only a determined quantity, viz. a little more than one inch is changed in the lungs?—effects displayed in the acceleration of the muscular action, the elevation of the spirits, and frequently the improvement of the health, when pure oxygen is administered medicinally—except by supposing that, although a certain portion only of oxygen is changed in the act of respiration, the electricity belonging to the whole quantity is disengaged, and that consequently the system receives different portions of electricity, though not of oxygen: and that it is electricity, and not the oxygen, which affects the health and spirits? Indeed the effects are such as might naturally be expected from the action of electricity; the powers of the principle with which oxygen is combined, appear to me the best calculated for effecting the various purposes that are attributed to oxygen, because they produce analogous phenomena in other cases.

Before I quit this part of the subject, I will observe, that atmospheric air is found to contain the same proportions of oxygen and azote in every climate and in all parts of the globe. It seems, therefore, that although these proportions may be altered by chemical means, in medical experiments, the air which we constantly respire contains the same quantity of oxygen, at all times: and yet nervous patients are more affected by the particnlar state of the atmosphere than by any other cause whatever. To what is this attribntable? It is not to a variation in the quantity of oxygen, for there is not only a determinate portion of it changed in the lungs, but a determinate portion contained in the atmosphere: it must surely be to a cause known to be variable—viz. to the quantity of electricity present in the atmosphere.

CHANGE IN ELECTRICITY.

It might be objected that the action of so powerful an agent would be too violent for the animal frame—my notion is that like all the other elements thrown into the living body, it is there subjected to some change or modification that fits it for the human frame, and that it is changed into animal electricity or galvanism, which, as we know, acts upon both dead and living animal matter. The change may be effected in the brain for the purposes of the animal life, and in the ganglia for the purposes of the organic life; and these organs may be glands appropriated to the important office of secreting the nervous fluid and accomodating it to the performance of the animal and organic functions. The ganglia have been supposed to serve the purpose of brains, and this I should think has some appearance of probability, for the nerves of the organic system diverge from these bodies, as the nerves of the animal system diverge from the brain.

CONDUCTORS OF THE ELECTRIC FLUID.

To these conjectures I shall add, that as the blood contains the perfect conductors of electricity, viz. charcoal and iron, I think it not impossible, that it may in some manner be conducted by these to the different organs, or perhaps by the serum, which is, like the nerves, formed of albumen.

Oxygen is the only simple substance naturally combined with negative electricity; while all others are naturally combined with positive electricity. Itis supposed that the union of the two electricities forms caloric, and it is in this phenomenon that I would seek an explanation of the production of animal heat. The union takes place when two substances form a chemical combination, and their opposite electricities are disengaged: in the act of respiration, may not the negative electricity contained in the oxygen which is inspired unite with the positive electricity contained in the venous blood, and produce the evolution of heat which takes place in the lungs! Indeed it is acknowledged that the operation of respiration is a kind of combustion. "Combustion is the rapid combination of a body with oxygen, attended by the disengagement of heat. The heat is produced by the union of the two electricities, which are set at liberty in consequence of the oxygen combining with the combustible body." (Conversations on Chemistry.) "In respiration, a certain portion of oxygen combines with the carbon of the blood, and converts it into carbonic acid gas." Every chemical union produces an evolution of heat, owing to the union of opposite electricities; therefore heat must surely be evolved, when the oxygen of the atmosphere combines with the carqon of the blood.—If this heat were obtained merely from the caloric contained in the air, the temperature of the body could not be so equable, and the respiration must, I think, be sensibly affected during the night. This most important function is probably carried on by means less variable and uncertain; and it seems more likely that the animal heat is produced entirely by

a chemical process. Although we may *feel* chilled by the inspiration of the night air, the temperature of the blood remains nearly at the same point, and respiration is as free and as regular in the night as in the day, and in the winter as in the summer season, provided the lungs are in their natural healthy state. Not so if the air has lost its *elasticity;* which elasticity, it appears, is owing to the *electricity* which it contains; the breathing then becomes oppressed, and many unpleasant nervous sensations are the consequence of this state of the atmosphere; if it continues, disease and death may ensue. The union of the two electricities, causing an evolution of caloric, probably takes place in all the organs in which chemical changes are carried on, and indeed Bichat asserts that heat is produced in the general capillary system, as well as in the lungs.* In this manner we might easily account for the general diffusion of heat over the whole body. The evolution of heat which takes place in the *stomach* during digestion, and which is so necessary to the execution of this function, is perhaps caused by the union of the nervous fluid, if it *is* of an electric nature, with the opposite electricity contained in the aliment; and we cannot doubt that the nervous influence is employed in this operation; for it cannot be performed if the eighth pair of nerves, which goes to this organ, is divided. It may also have a share in the chemical changes which take place in digestion as well as in all the organs of secretion, for the *chemical combination* of different substances is partly effected by the union of their opposite electricities. Thus we find that the properties of electricity are calculated for the performance of all the principal operations of the living body; viz. chemical change, muscular motion, and the production of *heat*, which is as indispensable to the maintenance of life as the nervous influence itself; for, without heat, the vital functions cannot commence; and when the power of producing it is entirely lost in the body, life is irrevocably gone.

ANIMAL MAGNETISM.

INSTINCT OF ANIMALS.

We could never very well tolerate the application of the term "*Animal* Magnetism," to human beings; and hence our readers will have noticed, that we have, from the first, made a distinction in what may be affirmed of the planets, as also of human beings, and mere animals. *Animal* Magnetism is a term appropriate to beasts, birds, reptiles, and fish; *Human* Magnetism, to *intellectual* beings; and *Terrestrial* Magnetism, to those forces which govern the solar system. But as our work is devoted to the investigation of the laws of Magnetism in all their varied applications to matter, both animate and inanimate, it properly comes within the sphere of our labors to notice their developments in the animal kingdom also; and we are sure our readers will be delighted in finding how beautifully these laws agree, throughout the universe of God.

It is certain, that the nerves of animals, in their substance and functions, very much resemble those of man. And we have before suggested, that the *intellectual powers* of all animate bodies, depend upon the number and strength of certain magnetic forces; so that when we find a certain part of the cerebrum developed more or less, other things being equal, we may calculate with certainty as to the intelligence or reasoning powers of that important organ.

It is certain that man differs from the lower orders of animals, not merely in respect to his intellectual powers, but also in his possessing organs which render him responsible to his Creator, and which also give him a consciousness of an unchanging identity of being through the whole course of his existence. This proves that the *thinking, reasoning, self determining principle* in man, is not matter, inasmuch as we know, that matter, in no one of its forms, can be said to be unchangeable. The human body does not remain the same more than seven years; that is, the matter of which it is composed does not remain the same longer than this space of time. But through all the changes in the animal body, the *mind* remains the same in its identity, and, as we believe, governs and controls the nerves, and through them the muscles, bones, &c., of the body, by the magnetic forces.

However, we must not enlarge here. We commenced with the design of laying before the reader some facts which go to show, that animals have the power of reason, in an inferior degree—at any rate, a power which seems to approach very much to this faculty. And comparative anatomy will show, that the strength of this faculty in animals will be found to correspond with the size of that portion of the brain where phrenologists have located the organs of causality, and in which we suppose two large consecutive poles of the brain are located. This is true, in some cases, at least. But we are inclined to the opinion that there is a species of *reason* which is peculiar to every cerebral organ. So that, when you find the organs of caution large, for instance, in the cat and fox, the exercise of those organs constitutes what has been denominated *instinct*, or the reason of those animals.

The subject is certainly curious, and we give the following articles a place in our columns for the purpose of interesting the scientific in its investigation.

DO BRUTES REASON?

The last number of the Northern Light, a valuable periodical published in Albany, has an essay on this question by Willis Gaylord, from which we take the following answer:—

It appears very evident that brutes perform various actions which can fairly be attributed to neither instinct nor imitation, but must be classed with the results of reflection. That animals remember, will be disputed by no one; yet the very fact of their having a memory and acting upon it, proves the power of combining and inferring. The horse that eats his oats from the half bushel to-day, remembers the fact to-morrow, and infers when the measure is brought to his view that another meal is in readiness, while his neigh of pleasure attests his satisfaction at the prospect. The sportsman's dog is as well aware as his master what is intended, when the shooting apparatus is brought out, and his conduct shows that he relishes the sport as keenly. This is not the result of instinct, as the taste is an acquired one, and

*The capillary system consists of the minute vessels which proceed from the extremities of the arteries; they form an essential component part of the several organs, and most of the important functions of organic life; as secretion, nutrition, exhalation, &c., take place in them. This system gives origin to the exhalants, the vessels which convey the materials of nutrition, &c.; and is a general reservoir, in which the red blood enters at one side, and the black blood, exhalations, secretions, &c., are sent out at the other.

it is a power not widely different from reason, and excited by memory, that combines and connects the sight of a gun with the sports of the field. There is no reason whatever to imagine that actions in a brute, implying the possession and exercise of reasoning powers, may not, and should not be attributed to such a cause in the brute, as well as in the man. A few years since we were passing by an orchard in which a yoke of cattle were pastured. The apples were ripe, the cattle were very fond of them, and those that fell were quickly eaten by them.—Gradually they had gathered from the branches all within their reach, and were now compelled to wait for such as fell of themselves. We observed one of the oxen to walk repeatedly around one of the trees, and make a number of ineffectual efforts to reach some of the fruit. Suddenly he stopped, took one of the branches in his teeth, and gave the tree several violent shakes. The apples rattled off merrily; he let go the branch, and had a hearty meal as the reward of his sagacity. The only question is, did he design to shake off the fruit? It can only be said if a man had wished to accomplish that effect, he could not have devised a more skilful method, or gone more directly to the end in view; why then refuse to the one what we grant to the other? By common consent the title of "half reasoning" has been awarded to the elephant, and a multitude of proofs might be cited to show that the appellation is not undeserved. He has been known after stepping upon a bridge to refuse to cross it, as unsafe, and prefer swimming the river with his attendant, to passing the bridge. A shilling was thrown to an elephant in a menagerie; it rolled to the side of the place in which he was confined, and lodged close to the foot of the upright boards that formed the partition. The prehensile part of the trunk, delicate as it is, could not grasp it, and the spectators who saw him repeat his trials concluded he would abandon the attempt. He, however, reasoned differently. Placing his trunk close to the plank, and immediately over the piece of money, he blew with all his force, and the shilling was immediately dislodged, and placed within his reach. In this case there was evident reflection, a reasoning from cause to effect, and a nice adaptation of means to the end; in other words, there was design.

We have noticed in a late number of the London Lancet, an interesting account of intellectual development in a couple of dogs belonging to a French gentleman of the name of Leonard, resident in London. The dogs are of the Spanish breed, and the writer says, when introduced to him by Mr. L., with true French politeness, both bowed very graciously, and then seated themselves on the hearth rug. A great variety of experiments were then made with the animals, such as going through the exercises of the *menage*, exchanging a variety of different colored cards with each other, bringing to their master meat, bread, or cards, as commanded, Mr. L. sitting with his back to the dogs, and giving his directions in such a manner, and at the suggestion of the writer, as to put their intelligence to a severe test. So rapid were his orders, that, without a perfect understanding of his words, obedience would have been impossible. The writer adds:—

"After many other performances, evincing the wonderful sagacity and perception of the dogs, M. Leonard invited me to play a game of dominos with one of them. The younger and slighter animal then seated himself on a chair at the table. M. L. and myself placed ourselves opposite. Six dominos were placed on their edges in the usual manner before the dog, and a like number before me. The dog having a double number took it up in his mouth, and put it in the middle of the table; I placed a corresponding piece on one side; the dog immediately played another correctly, and so on until all the pieces were engaged. Other six dominos were given to each, and I intentionally placed a *wrong number. The dog looked surprised, stared very earnestly at me, and at length growled, and finally barked angrily.* Finding that no notice was taken of his remonstrances, he pushed away the wrong domino with his nose, and took up a suitable one from his own pieces, and placed it in its stead. I then played correctly; the dog followed, and won the game. His play must have been the result of his own observation and judgment, as not the slightest information was or could have been given by M. L. to his dog."

M. L. is a gentleman of fortune, and the instruction of his dogs has been taken up merely for his own amusement and diversion. He has found that by inducing the animal to repeat again and again what was required, not only would the dog become capable of performing that specific act, but that part of the brain which was brought into activity by the mental effort, would become more largely developed, and hence a permanent increase of mental power be obtained. The fact is in accordance with the known laws of the physiology of the nervous system.

Such instances of intelligence might be multiplied to any extent, but it is unnecessary. Every person who has observed the actions of horses, dogs, foxes, and indeed all other animals, mus have noticed numerous cases involving the exercise of memory, design, and a perception of the relation between cause and effect; and thus proving that reason, or the power of combination and inferring, is possessed by brutes. The power, it is true, is less perfect than in man, a circumstance we should naturally infer from the greater proportionate volume of brain, and its more perfect arrangement in the latter than in the former; still it may reasonably be inferred that the difference is only in degree, and not in kind.

We come to the conclusion then, that the question with which this paper commences should be answered in the affirmative, that brutes do reason. A general belief of this fact would, it is believed, materially change the treatment which they, under the mistaken idea that they were destitute of intellect, have been accustomed to receive from man. Placed by the Creator at the head of "earth's countless myriads," man's station is sufficiently elevated and responsible, without assuming distinctions, or imputing inferiorities which do not exist.

It may not be amiss to remark here, that the question under discussion, has no connection with the duration of mind, or the glorious destinies of man hereafter. The immortality of the soul does not depend on its power of reason. He who brought "life and immortality to light" might, had it so pleased him, as easily conferred the gift of endless existence on the "spirit of the beast that goeth downwards," as upon the "spirit of the man that goeth upwards."

Otisco, April, 1829.

TAMING HORSES.

BY A. J. ELLIS, B. A. WINDSOR, OXLEY.

Mr. Catlin, in his work on the manners and customs of North American Indians, gave the following account of their method of taming the wild buffalo calves, and wild horses:—

"I have often, in concurrence with a well-known custom of the country, held my hand over the eyes of the calf, and breathed a few strong breaths into its nostrils; after which I have, with my companions, rode several miles into our encampment, with the little prisoner busily following the heels of my horse the whole way as closely and affectionately as

its instinct would attach it to the company of its dam. This is one of the most extraordinary things that I have met with in the habits of this wild country; and although I had often heard of it, and felt unable exactly to believe it, I am now willing to bear testimony to the fact, from the numerous instances which I have witnessed since I came into the country. During the time that I resided at this post, in the spring of the year, on my way up the river, I assisted (in numerous hunts of the buffalo, with the Fur Company's men) in bringing in, in the above manner, several of these little prisoners, which sometimes follow for five or six miles close to our horses' heels, and even into the Fur Company's fort, and into the stable where our horses are led. In this way, before I left for the head waters of the Missouri, I think we had collected about a dozen."

In the same way the wild horses are tamed. When the Indian has got him well secured with the lasso, and a pair of hobbles on his feet, "he gradually advances until he is able to place his hand on the animal's nose, over his eyes, and at length to breathe in its nostrils, when it soon becomes docile and conquered; so that he has little more to do than to remove the hobbles from his feet, and lead or ride it into the camp."

Mr. Ellis chanced to read this account when on a visit in Yorkshire, and forsooth resolved to try the experiment. He and his friends were alike incredulous, and sought amusement by the failure rather than knowledge by the result—but two experiments, all he was able to try, were both successful. Here are the particulars of them :—

"Saturday, February 12, 1842.—While the last experiments were being tried on the yearling, W. espied B., a farmer and tenant, with several men, at the distance of some fields, trying, most ineffectually, on the old system, to break a horse. W. proposed to go down and show him what effect had been produced on the yearling. When the party arrived at the spot they found that B. and his men had tied their filly short up to a tree in the corner of a field, one side of which was walled, and the other hedged in. W. now proposed to B. to tame his horse after the new method. B., who was aware of the character of his horse, anxiously warned W. not to approach it, cautioning him especially against his fore feet, asserting that the horse would rear and strike him with the fore feet, as it had 'lamed' his own (B.'s) thigh just before they had come up. W. therefore proceeded very cautiously.He climbed the wall, and came at the horse through the tree, to the trunk of which he clung for some time, that he might secure a retreat in case of need. Immediately upon his touching the halter, the horse pranced about, and finally pulled away with a dogged and stubborn expression, which seemed to bid W. defiance. Taking advantage of this W. leaned over as far as he could, clinging all the time to the tree with his right hand, succeeded in breathing into one nostril, without, however, being able to blind the eyes. From that moment all became easy. W., who is very skillful in the management of a horse, coaxed it, and rubbed its face, and breathed from time to time into the nostrils, while the horse offered no resistance. In about ten minutes W. declared his conviction that the horse was subdued; and he then unfastened it, and, to the great and evident astonishment of B., who had been trying all the morning in vain to get over it, led it quietly away with a loose halter. Stopping in the middle of the field, with no one else near, W. quietly walked up to the horse, placed his arm over one eye, and his hand over the other, and breathed into the nostrils. It was pleasing to observe how agreeable this operation appeared to the horse, who put up his nose to receive the puff. In this manner W. led the horse through all the fields to the stable yard, where he examined the fore feet of the horse, who offered no resistance, but while W. was examining the hind feet, bent its neck round, and kept nosing W.'s back. He next buckled on a surcingle, and then a saddle, and finally fitted the horse with a rope. During the whole of these operations the horse did not offer the slightest resistance, nor did it flinch in the least degree."

Two experiments are all Mr. Ellis had an opportunity of either witnessing, or hearing the results of. But, as he states, these have been to him perfectly satisfactory; and, as he has no opportunity of carrying them on, since he is unacquainted with the treatment of horses, and neither owns, nor is likely to be thrown in the way of unbroken colts, he has resolved to publish these particulars, that gentlemen, farmers, and others, may at least try so simple a plan, and thus test and determine its value. Mr. Ellis is of opinion that this is the secret of the celebrated Irish horse tamers; and we remember that in more than one recorded instance of their power, they pretended to whisper to the animal, and played with his head, and thus probably breathed into his nostrils.

EXTRAORDINARY INSTINCT.

The following remarkable fact, connected with the death, or at least the discovery of the body of a man named Leoch, at Bredfield, is related in the Suffolk Chronicle. The deceased, who resided at Ufford, left the Castle public house, at Bredfield, late at night, intoxicated, but in the company of two other persons, with whom he had been drinking, and who also lived at Ufford. After a short time, however, they passed one another the two latter having stopped, thinking the deceased was before, and their not overtaking him did not create any alarm, but that all was right with him. After an anxious night and part of next day, he not coming home, his daughter resolved to go in search of him. Accordingly she set off for Petistree Tuns, but gaining no tidings of him there, she determined upon going to Bredfield Castle, about two miles distant. She had not left the Tuns long, when she met a dog, a terrier, which displayed great delight, as if it had met a person whom it had long known; though it seemed perfectly good natured, she was afraid of it, and beat it from her, and kept it at a distance by stoning it, but to no purpose; it still followed till her arrival at the Castle, at Bredfield, where, after learning the time and situation her parent had left there the night before, full of wonder and fear as to what had become of him, she was about retracing her steps home the way she had come, but her companion was in waiting, and immediately ran on instead of following her as before, which attracted her attention, and induced her to follow it. When it ran down a drift leading to a footpath to Ufford by the side of which was a ditch, it suddenly stopped, making a dead point, and stood firm in that condition till the young woman came to the spot, when on looking into the ditch, she saw the body of her father extended at the bottom, partly covered with water. She immediately gave an alarm, and the body was removed to the public house to await the issue of the coroner's inquest. The young woman went home, attended by the faithful companion, where it has ever since remained, showing the greatest attachment to the place and the family of the deceased. A most mysterious feature in this case is, that no one knows the dog, to whom it belongs, or from whence it came, although it has been seen by many persons since, for the purpose of identifying it.

A MONKEY'S MEMORY.

Authors generally seem to think that the monkey race are not capable of retaining lasting impressions —but their memory is remarkably tenacious when striking events call it into exercise. A monkey which was permitted to run free, had frequently seen the men servants in the great country kitchen, with its huge fire place, take down the powder horn that stood on the chimney piece, and throw a few grains upon the fire, to make Jemima and the rest of the maids jump and scream, which they always did on such occasions very prettily. Pug watched his opportunity, and when all was still, and he had the kitchen entirely to himself, he clambered up, got possession of the well filled powder horn, perched himself very gingerly on one side of the horizontal wheels placed for the support of sauce-pans, right over the waning ashes of an almost extinct wood fire, screwed off the top of the horn and reversed it over the grate. The explosion sent him half way up the chimney. Before he was blown up he was a snug, trim, well conditioned monkey as you would wish to see in a summer's day; he came down a black, carbonated nigger in miniature, in an avalanche of burning soot. The thump with which he pitched upon the hot ashes in the midst of the general flare up aroused him to a sense of his condition. He was missing for days. Hunger at last drove him forth and he sneaked into the house close by, singed, and looking scared. He recovered with care, but like some other personages, he never got over his sudden elevation and fall, but became a sadder if not a wiser monkey. If ever Pug forgot himself and was troublesome, you had only to take down the powder horn in his presence, and he was off to his hole like a shot, screaming and chattering his jaws like a pair of castanets.

PHYSIOLOGY.

ANIMALS AND INSECTS.

BY PROF. HITCHCOCK.

The sciences of Anatomy and Physiology abound in facts the most wonderful and interesting. Comparative Anatomy has of late been a subject of close attention; and so perfectly have its principles been established that from a single bone or tooth the character of the animal may be inferred, with its food, habits, haunts, and all the circumstances of its existence. Comparative Anatomists have, from a single tooth described and made drawings of the extinct creature to which it belonged; which has been found to agree exactly with a skeleton afterwards discovered. We cannot fail to be struck with the change as we go from the Anatomy of the human body to that of the lower animals, and with the perfect adaptation of the organs to the circumstances and character of the different animals. Looking at the eye, for instance; we cannot see in water, while on the other hand fishes are blind in air. By the use of very convex spectacles, however, our vision may be distinct in water; and there is little doubt that a skilful optician could furnish a Whale who might wish to travel 'on the continent' with glasses which should enable him to see as distinctly and observe to as much purpose as many of our own species have done. Some in sects which live upon the surface of the water are furnished with two pair of eyes—one for seeing through the air and the other through the water. As the eyes of insects are usually fixed in the head, so that they cannot easily be directed to different objects, they are made polygonal—furnished with an almost infinite number of plane surfaces; and each of these surfaces is in fact a distinct eye. The common house-fly has 7,000 of these surfaces in each eye, and the butterfly 17,000. The crystalline lens of the codfish which is never half an inch in diameter, is made up of above five millions of fibres held together by sixty-two thousand millions of teeth. We find it difficult to conceive how animals can exist without heads; but there is a class of animals, which live in shells, which, for the very reason that they are headless, are named *acephalous*. The skill these headless creatures evince in constructing the shells they inhabit, moreover, throws completely into the shade the skill of the biped that not only boasts of having a head, but of being absolutely *the* head of the whole creation. The construction of their nests by wasps —a single queen of whom frequently rules over 30,000 subjects all her own children, too—is worthy of our highest admiration. The character of the spider, too, as ascertained by the great naturalist HUBER who placed them under glass cases and examined them closely with highly powerful microscopes, is especially wonderful. This insect, so long as it remains in possession of the cocoon it has spun will defend it with desperate valor against all assailants; but when this is taken away it will so perfectly simulate death that all its limbs may be torn off and will evince no life; but if its web be again brought within its reach it grasps it with the fiercest energy. The trap-door spider, found in the West Indies, digs a hole in the ground some six inches deep, lines it with a thick coating of silk and closes its mouth with a lid which springs down so as to shut out all enemies.

The transformation or metamorphosis of animals which change their form is also curious and interesting. Thus serpents throw off their skins annually; frogs at first are tadpoles, and butterflies and other insects of the same kind are first hatched in the *larvæ* state, appearing as a caterpillar or grub, and only emerge into their final beauty through the *pupa* or crysalis state.

A singular species of animals is found inhabiting the gills of the fish, called the *diplozoon* species; having two bodies like the Siamese twins; and what is still more wonderful the two bodies seem to be influenced by different dispositions. The species of *Polypi* also present a subject of curious and instructive inquiry. The simplest form of these animals is a simple tube, which is in fact a stomach, the mouth being surrounded by a number of long arms which collect and force into the stomach the food on which the animal subsists. These creatures have the remarkable power that when turned inside out like a sack, as may easily be done, it makes no difference with them—digestion and all other functions going on just as well. The animal moreover may be cut up into a multitude of parts without destroying its vitality. Each piece immediately forms itself into a new tube, arms or *tentaculæ*, as they are called, shoot out, and the functions of life commence. A number of heads may also be cut off and thrown together, when they will soon combine to form a new animal with a great number of heads. Many plants of the fungous species are often found growing out of the bodies of living insects.

The number of species of different animals that have been discovered on our globe is a subject of no little interest. Of the mammalia there have been found 4,000 different species; of birds 6,000; of fishes 8,000; of insects 120,000; of shells 9,000, and of polypi 3,000, making in all 150,000 different species, which is probably not half the number that really exist. The number of individuals belonging to a single species is also most astonishing. Capt. Flinders once observed in Van Dieman's land a flock of

petrel, containing not less that 150,000,000 individuals; and Audubon saw near the Ohio river a single flock of pigeons which must have numbered at least 90,000,000,000, requiring at least 9,000,000 bushels of grain for a single day. The gelatinous animals on which the whale lives, called *meducae*, so abound in parts of the Arctic Ocean, as to color the water for miles around; and a cubic foot of water contains at least from 80,000 to 1,000,000 of them. Several shoals laid down on the charts of the South Seas have been found to be nothing more than these meducae, discoloring the water so as to produce the deception.

The number of young produced by certain species of animals is most surprising. The queen of the *termites* in four months depositos 80,000 eggs; the queen of the *cyclops* 4,000,000,000; the *carp* deposits 200,000 eggs at once, and the *tench* and *flounder* likewise have most wonderful powers of re-production.

Of the *infusoriæ* or animalculæ, which, except the vinegar eel, are all microscopic, seven hundred species have been described, the smallest of which comprises animals not more than one twenty-four thousandth part of an inch in diameter; and a single drop of water will contain 500,000,000 of them, and still allow each an abundance of sea-room. Yet every one of these is provided with all the organization of animal life; and naturalists by giving them colored food—as pure indigo—have been able to trace their nerves and circulating vessels. In high northern regions and upon the Alps the snow is often seen to be tinged with red; and it has been ascertained that this is caused by the presence of living animalcula, which can only exist in the temperature of snow and perish as soon as it melts. Many of the animalcula called *hydatina*, are covered with a shield of pure silex, which, when the animal dies, is deposited at the bottom of the water forming beds of feruginous matter many feet thick. Whole rocks have been found by geologists entirely made of these skeletons. In Germany these beds are often fourteen feet thick: forty-one thousand millions of these skeletons will only fill a cubic inch of space. Prof. Bailey of West Point has found under great peat bogs in this country, a white substance which was long mistaken for magnesia; but which is found to be nothing but the skeletons of minute animals living in the water.—*N. Y. Tribune.*

PHYSICAL DEBILITY OF AMERICAN WOMEN.

But the second and still greater difficulty peculiar to American women, is delicacy of constitution; which renders them victims of decay.

The fact that the women of this country are usually subject to disease, and that their beauty and youthfulness are of shorter continuance than the women of other nations, is one which always attracts the attention of foreigners; while medical men and philanthropists are constantly giving fearful monitions as to the extent and alarming increase of this evil. Investigation makes it evident that a large proportion of young ladies from the wealthier classes have the incipient stages of curvature of the spine, one of the most sure and fruitful causes of future disease and decay. The writer has heard medical men, who have made extensive inquiries say, that one of every six of the young women at boarding-schools are affected in this way; while many other indications of disease and debility exist in cases where this particular evil cannot be detected.

In consequence of this enfeebled state of their constitution, induced by a neglect of their physical education, as soon as they are called to the responsibilities and trials of domestic life, their constitution fails, and their whole life becomes a burden. For no person can enjoy existence when disease throws a dark cloud over the mind, and incapacitates her from the proper discharge of every duty.

It would seem as if the primeval curse that has written the doom of pain and sorrow on one period of a young mother's life in this country, has been extended over all; so the hour never arrives when "she forgetteth her sorrow for joy that a man is born into the world." Many a mother will testify with shuddering that the most exquisite sufferings she endured were not those appointed by nature, but those which, for week after week, have worn down health and spirits when nourishing her child. And medical men teach us that this, in most cases, results from debility of constitution consequent on the mismanagement of early life. And so frequent and so mournful are these and the other distresses that result from the failure of the female constitution, that the writer has repeatedly heard mothers say that they wept tears tears for the sufferings they were destined to undergo; while they cherished the decided wish that these daughters should never marry. At the same time, many a reflecting young woman is looking to her future prospects with very different feelings and hopes from those which providence designed.

American women are exposed to a far greater amount of intellectual and moral excitement than those of any other land. Of course, in order to escape the danger resulting from this, a greater amount of exercise in the fresh air, and all those methods which strengthen the constitution, are imperiously required.

But instead of this, it will be found that, owing to the climate and the customs of this nation, there are no women who secure so little of this healthful and protecting regimen. Walking, riding, and gardening, in the open air, are practised by women of other lands to a far greater extent than by American females. Most English women, in the wealthier classes, are able to walk six or eight miles on a stretch, without oppressive fatigue; and when they visit this country, always express their surprise at the inactive habits of the American ladies. In England, the regular daily exercise in the open air is very commonly required by the mother as a part of daily duty, and is sought by young women as employment.

In consequence of a different physical training, English women in those circles that enjoy competency present an appearance which always strikes American gentlemen as a contrast to what they see at home. An English mother, at thirty, or thirty-five, is in the full bloom of perfected womanhood—as fresh and as healthful as her daughters. But where are the American mothers who can reach this period unfaded and unworn? In America,—young ladies in the wealthier classes are sent to school from early childhood; and neither parents nor teachers make it a definite object to secure a proper amount of fresh air and exercise, to counterbalance their intellectual taxation.

As soon as they pass their school-days, dressing, visiting, evening parties, and stimulating amusements, take the place of study; while the most unhealthful modes of dress add to physical exposures. To make morning calls, or to do a little shopping, is all that can be called their exercise in the fresh air; and this, compared to what is needed, is absolutely nothing. In consequence of these and other evils that will be pointed out more at large in the following pages, the young women of America grow up with such a delicate constitution, that probably eight out of ten become subjects of disease either before or as soon as they are called to the responsibilities of domestic life.—*Miss Beecher.*

THE

MAGNET.

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For the Magnet.

SURGICAL OPERATION IN THE MAGNETIC SLEEP.

In November, 1841, I magnetized a young lady in Leicester, Mass., who was subject to fits; was successful in putting her into a sound sleep; its influence upon her disease, sufficient time has hardly elapsed to definitely exhibit. While lecturing upon Phrenology the same month, in Charlton, Mass., I was called to visit a family professionally, and found one member, (Miss B., aged 33,) very nervous, and apparently in a high state of mental excitement. I proposed magnetising her—she consented; I was unable, however, to produce a perfect sleep, the operation affecting her breathing to such an extent, bringing on convulsions, as to render a cessation necessary. Before retiring I was informed she was a subject of partial insanity. A few days afterwards I met her again and renewed my efforts to magnetise her, but was obliged to desist, from the same difficulty. I have made other attempts, but always with the same results; was called upon several times to quiet her when in her highest stages of excitement, and found myself uniformly successful in calming her. I now learned that she was hereditarily disposed to insanity—that two of her aunts had been insane from nervous excitement alone; and that her mother was placed in a very critical situation a few months before her birth, by the situation of the family, and also, having the entire care of a female lunatic upon her mind. These circumstances led me to conclude that hers was a very difficult case to cure. The immediate cause, developing the germ of insanity, which had been lying dormant in her system, was an excitement upon the subject of religion, which led her to read the bible attentively for several weeks, until her mind became completely exhausted, and her digestive powers, consequently, much impaired. When in her greatest distress she complained of a severe pressure on the stomach, and acute pain in the top of her head, embracing nearly all the moral organs, particularly Benevolence, Veneration and Marvellousness, and at such times she repeated scripture with great rapidity and correctness—had much to say about the influence of the Holy Spirit, and willingness of God to save all mankind through the atonement of Jesus Christ. (Her religion is that of the Restorationists, and she belongs to the Fraternal Community, established in Millford.) The more diseased this portion apparently became, the more extravagant was she in her ideas and language, until she called me the Saviour, and finally clothed me with the authority of the "Father of all;" besides a thousand other vagaries, that, taken with her diseased brain, constitute important Phrenological facts, but which might appear foreign to the subject in hand; I will therefore pass over them. Such was her confidence in me, that finally she would do nothing or eat nothing without my sanction. I was sent for once, when in Worcester, to see her—spent two days with her, and was of much service in quieting her, and removing the inflammation from the brain by Magnetism. Her insanity, however, appeared so confirmed that I advised her friends to take her to the Insane Hospital at Worcester. They did so, and she remained there some nine or ten weeks, until Dr. Woodward and her friends thought her much better, if not entirely cured; in fact, she appeared better for two or three days after leaving the asylum. She says, however, that her good conduct was all feigned, for the purpose of escaping from the Hospital, she being excessively prejudiced against the place for what reason it is unnecessary to state; and such appears to have been the case, for she now grew worse and worse rapidly—the pains in her head increased, particularly in her temples, region of constructiveness, &c. While under the latter excitement she worked an immense number of needle books, &c., of fantastic shapes and singularly ornamented. She was also attacked by severe nervous pains in her jaws; she soon was seized with an insatiable desire for writing, and while under the influence of this morbid desire, wrote many letters. She next insisted that I had the power to relieve her at once, and so strenuously did she urge it, threatening self destruction unless her desire was complied with. I was requested earnestly by them to visit her, and given to understand they considered it the *last* resort. I left my business in Boston, and have been with her about three weeks. I found her without any appetite, without rest day or night, and in great, almost constant pain in her temples and teeth. I have magnetised her daily without producing sleep, but she found great relief from it; for the last ten days she has had a strong appetite and no pain in her head or teeth. Physically, she is every way better. I have repeatedly stopped severe pain in an instant, simply by an effort of the will. I found magnetised water of great service. Her whole history for the last six months, is very interesting, and probably will continue so as long as she lives. If any thing very important occurs hereafter in relation to her, illustrating Phrenology or Magnetism, I will inform you.

I have cured many simply by means of Mesmerism, of the head-ache, tooth-ache, burns, bruises, inflammation, &c., &c. But the best case I have ever met with, I found in Millford. I visited this place professionally, the first of March, 1842, and while engaged in making Phrenological examinations in the family of Mr. Dexter Walker, I was told that the young lady just examined, (a Miss Leland,) was

troubled at times with a very severe pain in her head, which singularly affected her vision, she being enabled to see things distinctly in the dark—that she was a natural sleep walker—had been known to start from her bed, walk the room, go all about the house, and had frequently walked miles in the street bare footed in a state of unconsciousness, until her arrival at the place started for. At another time she went to another town, distant nine or ten miles, in her night clothes, and only returned to consciousness upon reaching the door step of the house she intended visiting. I told Mrs. Walker that I should not be surprised if I was enabled to cure her. I magnetised her seven times; the third time she slept nineteen hours, and the same length of time upon the sixth. I found her a perfect Somnambulist, and the best clairvoyant I ever saw; she would state correctly what was going on in the neighbourhood, would tell with perfect accuracy whose hair was handed to her and what was the matter with them, when I was entirely ignorant of the individuals and of the nature of their complaints. With regard to the influence Magnetism has had upon this lady, I would state that her health has been better for several months, than it has been for several years previous. She has been visited by but one of her frequent turns of sleep-walking, and that was brought on by severe labor on a warm day, since her being magnetised.—Her blood was full of humors, and they have now been driven to the surface, and are leaving through three running sores upon her head. There is no doubt in my mind, but that she might be perfectly cured by means of Magnetism, but unfortunately, the physicians about her, most of them, know nothing and believe nothing in the science. One interesting fact in relation to her I will relate: She was much addicted to taking snuff, and wished to break herself of it but could not; when in the Magnetic sleep I put her mind against it; she has not taken a pinch since (three months) and cannot be urged to do it. I made some inquiries of her concerning the poles of the organs, and as far as I went the result verified the experiments we tried with "Blind Mary." She is the best subject I have ever seen.

My last experiment, and decidedly the most important, was produced by Magnetising Mrs. A. Mann, the wife of George B. Mann, P. Master of this village. She is naturally extremely nervous, so much so as to amount to a disease, and very sensitive. The other day a letter was brought in; she received an impression that it contained unfavorable news, and went into violent spasms, and it was several hours before she recovered from its effects. Is very susceptible to the influence of Magnetism. Have put her to sleep by putting cotton in her ears, and any thing passed from my hands to her will be clenched so nervously as to defy all attempts at taking it away from her. She was much affected by severe head and tooth-ache, but since being magnetised, she has not been troubled with either, and as she informed me last week, was never previously so well in her life. She complained, however, of her appetite having always been very poor. I magnetised the organ of Alimentiveness, and she manifested excessive hunger, eating with violence at every meal, finally bringing on sickness.

Speaking of exciting the organs, I will give one of the most convincing facts that I have witnessed, demonstrating that particular and distinct portions of the brain are magnetised and capable of action without reference to the other portions. At one time I asked her if she would like to be put in communication with her husband? She answered yes!—if I would remain. I told her I thought she was selfish. Her husband soon went out, and I observed her crying, and manifesting much distress;—I asked her what was the matter? She replied, "my head, my head!" I asked her where? She replied, at the back part in the crown—I asked her the cause—she said I had told her she was selfish. I then put my finger on the organ of approbativeness, and asked her if that was the part affected—she said yes—I then reversed the state of the organ, and excited self esteem—she then said she did not care what I or any one else said about her. She informed me she had a tumour upon her shoulder, that she would like to have taken out. I told her it could be done, most probably without her knowing or feeling it; she consented to have it done, and Tuesday of last week was appointed for the operation. I came according to the appointment, and put her into the magnetic condition at half past 9 o'clock A. M. She was under the impression that she would be awoke and put to sleep a second time before any attempt would be made at extracting the tumour. Dr. Fiske came at 10—commenced the operation at about 11, and closed at half past 12 P. M. There were present, Dr. Fiske, Mr. G B. Mann, (her husband,) Miss M. B. Cleaveland and myself. From the first incision until the operation was two-thirds completed, she experienced no pain whatever, but chatted and laughed as though she were perfectly at ease. At this time it became necessary for some one to assist the Dr., and quitting her I directed my attention towards aiding him—not being supported, she began to experience some pain, and wished the Dr. to stop. She became more and more distressed, and wished me to send him away, letting her rest awhile, and then it could be finished without hurting her—she grew more and more urgent, and said *she could not stand it*, and that the Dr. *must stop*. I asked her at this point if she were asleep; she said yes. He stopped several times a minute or two, which prolonged the operation; but he was afraid to let it remain unfinished, thus continued to operate contrary to her requests. At length it was completed and bandaged. I then put her into a more quiet sleep until half past four, at which time I aroused her. When she opened her eyes she was much amazed at the plight she found herself in—dress disarranged, arm uncovered, &c—for a minute she was laughing and crying at the same time. I asked what the matter was—she replied, her dress, how came it so disarranged, and her arm, how came that bare? I asked her if she did not know the cause? She said no; then hesitated, and asked the question if the tumour was removed; I asked her if she did not know whether it was removed or not. "*Is it?*" inquired she with great earnestness. I then informed her—"Oh!" exclaimed she, with joyful surprise, "how glad I am—why, I thought I was to be put to sleep a second time to have it taken out." She then looked at the wound, and said, she knew nothing about it, had no knowledge of the operation or of any pain; she could hardly be made to believe it.—Her arm had been retained in the mesmeric condition when she was taken out, and she did not feel any soreness or pain in her arm. Put her to sleep at half-past 8, and awoke her at 2 in the morning; she has been in the magnetic sleep half the time since, and up to Friday last heard from her, being 4 days after the performance of the operation, she had not experienced the slightest pain. The Dr. describes the tumour as follows: "It is an adipose tumour, 4 inches and 5 1-6 in length, and 5 inches in breadth, at the lower half gradually becoming thinner at the edge, diffusing itself under the integuments and cellular substance over a large surface. The attachments to the skin and muscles being being very strong, and the surface of the tumour being irregular and badly defined, rendered the operation protracted, and would

in ordinary cases be extremely painful." The Dr. adds, there is not in the whole circle of his acquaintance, another person that is so nervous and so bad a subject for an operation, and that under ordinary circumstances, he would not attempt any important operation upon her for $1000.

I have certificates from the Dr., from Mr. Mann and Mrs. Mann, witnessing the truth of the above interesting fact. Very respectfully,

L. N. FOWLER.

New Bedford, (Mass.) Aug. 8, 1842.

"The above statement in relation to Mr. Fowler's magnetizing my wife, its effects and results, I am prepared to testify are perfectly correct.

GEORGE B. MANN.

I am fully prepared to attest the truth of the above statements of Mr. Fowler as far as I have been sensible of the circumstances. After I was magnetised last Spring, my health was for a long time, better almost than it ever was before, and in regard to the operation which has been performed, all I can say concerning it is, that I had a tumour in my arm, and I have none now, but how it disappeared I cannot say, as I have not the slightest recollection of its removal; and as to any trouble from my arm since, I think the fact of my writing this certificate the third day after the operation, without any difficulty, is sufficient proof that it is doing well, and thus far have not had the slightest pain, and if necessary would be perfectly willing to go through the operation again.

ANNE F. MANN.

We were present when Mr. Fowler waked up Mrs. Mann, and can testify that his statement is correct.

Miss M. B. CLEAVELAND,
ELIZABETH S. LOVELL,
HARRIET M. MANN.

I was present and assisted during the whole of the operation until she waked up in the afternoon, and know that what Mr. Fowler has said in relation to it, is correct.

M. B. CLEAVELAND.

I was present and performed the operation upon the right arm of Mrs. Mann on Tuesday last, Aug. 2, whilst as Mr. F. states, she was under the influance of magnetism, and believe, according to the best of my memory, that his statement is correct, although I am not as yet fully prepared to admit Magnetism to be a science, or believe in many of the details which its advocates ascribe to it.

JAMES FISKE, M.D.

THE NERVOUS INFLUENCE.

We continue our quotations from the Parisian work, alluded to in our last. The reader will find some of the views here set forth, quite interesting.

MYSTERIOUS AGENT OF THE ANIMAL AND ORGANIC LIVES, PROBABLY THE SAME.

Hitherto I have only enquired into the possible connexion of the electric power with the functions of the *organic* life, and suggested the probability of its being separated from the vital air by the action of the lungs, conducted by the blood secreted in the ganglia, and employed in the production of chemical changes in the secreting organs, and in the evolution of heat in the whole organic system. So far it would only be concerned in the performance of the *vital* functions; but if it could be proved that the *organic* life is maintained by this agent, it would not, I think, be difficult to trace the functions of the *animal* life to the same source also. When we consider the close connexion and the resemblance of many of the phenomena in the animal and organic nervous systems; that they are rather divisions of the same than distinct systems; that muscular motion, heat, and chemical changes are produced by the operation of both;* and that nature is never prodigal in her *means* of action, it will appear probable that the same agent operates in both. I think that the nervous fluid of the animal system may perhaps be secreted in the *brain*, which, among its other important functions, may serve as a gland for this purpose. Whether electricity, if such it be, undergoes any change or not, in this organ, is of no consequence to the points under present discussion–the object of enquiry is, whether the same agent, derived from the same source, viz. vital air, operates in both divisions of the nervous and muscular system. It must be allowed that the *causes* which excite muscular contraction in the two systems, are not the same; being material stimuli in the organic nervous system, and the operation of the will in the animal nervous system; but it does not follow that the *agent* which is called action must be different; and, indeed, though the brain obeys the impulse of the mind, its excitement by *material* causes can produce muscular motion also, as when pressure or irritation of the organ brings on convulsions.

SHARE TAKEN BY THE BRAIN IN THE ORGANIC FUNCTIONS.

Neither is the office of this organ limited to the functions of volition and sensation—it has some share in those of the organic as well as of the animal life. It is ascertained that the production of animal *heat* is very much influenced by the brain; when it ceases to exercise its functions, the animal loses the power of producing heat, even when the action of the heart and lungs are continued by artificial means. The brain also contributes to the production of chemical changes, for the operation of digestion cannot proceed when its communication with the stomach is intercepted. It is to be remarked that in this case the power of electricity can supply its place, and the requisite change in the aliment can be effected by *galvanism.*

OPERATION OF THE ELECTRIC FLUID IN THE ANIMAL LIFE.

If the electric fluid conducted by the blood causes contraction in the muscles, and sensibility in the nerves of the *organic* life, I should think it probable that it is the agent of the mind in the production of motion and sensation in the *animal* life, especially as the circulation of *red* blood to the extremities of the animal nerves is found indispensable to their sensibility. I should suppose that, in the operation of voluntary motion, the mind excites the electricity of the *brain*, which is from thence transmitted along the nerves to the voluntary muscle in which it excites contraction, and that in sensation, the contact of objects of sense excites the electric action of the *nerves of the senses*, from whence it is conducted to the brain.

SHARE TAKEN BY THE NERVOUS INFLUENCE IN THE EXCITATION OF IDEAS.

I also believe that it has a considerable share in the operation of forming ideas, in which the action of the brain is evidently indispensable. The muscular energy and mental powers are so intimately con-

* The nerves of the animal life have some influence in the production of animal heat, for the ligature of a nerve causes a general sense of coldness in the limb.

nected in the animal economy, that this, with other reasons, inclines me to believe that the same material agent is employed in the operation of each. "If the body has been fatigued, the mind cannot exert its powers of attention, memory, and judgement with alacrity; a student in mathematics would be unable to trace the steps of an intricate problem after having contended in an athletic game, and we cannot think so much and use strong exercise at the same time; these powers seem therefore to depend alike on the nervous energy, and the simultaneous diminution of both implies the diminished state of that energy,"* the nerves of the senses also require repose, as well as those of the voluntary muscles, and it seems as if the supply of the nervous fluid was exhausted in both after a certain degree of exertion.

SUCCESSION OF IDEAS.

Perhaps the regular secretion, and the continual excitation which the nervous fluid gives to the brain, are the reasons that the ideas succeed each other without intermission; and this constant succession probably never ceases while the brain is in a state of activity. The ideas may continue during sleep, though they do not always make a sufficient impression to recur to the memory when we are awake: when we do, we know we have *dreamed*.

THE VOICE.

A portion of the fluid must also be bestowed upon the vocal organs, probably a superabundant secretion of it produces loquacity. We may observe that a morbid increase of the nervous action frequently produces an extraordinary volubility of tongue; thus it sometimes precedes madness, fits of different kinds, etc., and accompanies anger—every one has experienced the relief that scolding gives in this case, probably by giving a vent to the superabundant nervous fluid.

RECAPITULATION.

To conclude.—I believe that the nervous fluid of the animal life carries on—1st, the functions of volition and sensation; 2nd, such of the mental operations as require the aid of a material agent, as the formation of ideas; and 3d, some of the organic functions, such as the productions of animal heat, and of chemical changes.

ELECTRICTIY AND GALVANISM.

I cannot help fancying that the different effects probuced by electricity, in carrying on life in the one system, and sensation and volition in the other, bear some analogy to the different actions of the voltaic battery and the electric machine; in the first, a copious and regular supply of electricity is obtained for chemical purposes; while the latter, whose action is only required occasionally, causes motion and sensation by the superior rapidity and intensity of the charge. However, I believe that the nervous fluid of the animal as well as the organic life to be *galvanic;* it is by galvanism that all the voluntary motions of the muscles may be imitated in the dead subject, and it is a stimulus which will cause contraction after all other stimuli have ceased to operate upon them. According to Bichat's experiments, it does not seem to have any effect upon the involuntary muscles; but in this department of the living economy, the action of which is very obscure, some peculiar mode of operation unknown to us may be required in the experiment, and the fluid ought perhaps to undergo some change in the organic system, of which we are ignorant. However, Dr. Fowler and Mr. Humboldt deny that galvanism has no effect on the organic muscles.

* The passages between inverted commas are quoted from Bichat's Physiological Works, translated by Lawrence.

EXHAUSTION AND RENOVATION OF THE NERVOUS FLUID.

The nature of the nervous phenomena shews, I think distinctly, the exhaustion and renovation of a material agent. The property of animal sensibility is exhausted by repeated excitement in experiments, and is renewed after some interval of rest: the power of moving the voluntary muscles is exhausted by exercise, and renewed by repose. Now, I cannot refer this exhaustion to the organ thus excited, because those which are under the influence of a perpetual stimulus are never fatigued, and the heart, which is incessantly stimulated by the blood, continues to contract during the longer or shorter period of our lives without requiring repose: I should rather suppose that it is the agent which *excites* the brain to sensation and the muscle to contraction, that is liable to exhaustion, not the power of *answering* to the excitation. Bichat observes, that when one of the organs of the organic life is in action, the others are usually in a state of repose, as if one part could not be excited unusually without a corresponding diminution in the rest, and that there was a determinate quantity of vital power for the whole.*

To this we may add that in nervous diseases, the irritation sometimes leaves one organ without any apparent cause, to fall suddenly upon another; in my opinion this has more the appearance of an increase and diminution of an exciting cause or nervous fluid, than of a vital power. If the stimulant of food, for example, produce a flow of nervous fluid into the stomach, and that its quantity in other parts is diminished in consequence, the fact seems simple and intelligible; but a diminution or increase of *vital power* in any part, is not easily accounted for, and I should think could only be the consequence of a diseased or healthy state of the organ. The digestive apparatus is so artfully contrived, that the presence of the aliments calls forth the fluids required for its digestion—thus the pressure of the full stomach produces a flow of bile from the liver just at the time that it is wanted—may not the excitation given to the nerves of the stomach by the contact of the food, with similar art, draw a flow of nervous fluid to that organ?

FATIGUE.

Every impression, whether moral or physical, which the nerves receive, may increase the flow of the nervous fluid at the time without causing that exhaustion, which produces the sensation of *fatigue*, so long as it is neither too frequent, nor too violent, nor too long continued; because in a proper state of health, it is constantly renewed in such proportion as to be adequate to the general purposes of life and mental action; and probably the hours devoted to sleep are sufficient for its renovation. Physical pain appears to me to *drain* the nervous system of the fluid which fulfils so many important purposes, and to diminish the general strength, by the exhaustion consequent upon its immoderate flow. As long as the increased secretion continues, the powers of life are still preserved, but as soon as the supply is exhausted, death, or at least syncope, must ensue. In most cases, as in fevers, convulsions, etc. a morbid increase of nervous action, followed by exhaustion, is sufficiently apparent. The mental action has a strong and evident influence in causing excitation and consequent diminution of the nervous power. This effect is very evident when

* The digestive apparatus is adapted to this arrangement.

the brain has been too much excited by the exercise of the mental faculties and when the frame has been agitated by the passions of the mind. Both these causes will ultimately produce diseases in the organic system, which always bear a nervous character in the beginning.* I believe that in some cases, the exertion of a vigorous mind can diminish the violence of their attacks as far as the nervous action is concerned in them, by regulating the action of the brain to a certain degree, and I believe we are not aware of the full extent of the mental over the physical powers when opposed to the physical evil.

MODE IN WHICH THE NERVOUS FLUID IS PRODUCED.

With respect to the manner in which the electric action may be excited in the brain, I have formed the following conjecture. Electricity may be excited by contact, pressure, and friction—now may not the regular and constant *motion* of the brain, which is supposed to be essential to the performance of its functions, have some connection with the excitation of the nervous fluid?* It seems that the impulse which this organ receives from the arterial blood, is thought necessary to maintain it in a state of activity, to enable it to operate in sensation and volition, and that this mechanical motion is as indispensable to its functions as the peculiar chemical properties of the red blood. Perhaps it is this regular and incessant friction, which obliges the production of ideas to be constant and without intermission, for we can find that the will can only direct and select them, but cannot prevent their formation.

MOTION OF THE ARTERIES.

The continual action of the nervous fluid must be required in every part of the organic system: perhaps it is excited, not only in the brain but in the whole of the nervous system, by the same means: viz. constant percussion, which percussion is occasioned by the arterial pulsations. "The smaller divisions of the arteries run into the interior of our organs, without however entering into their internal structure; thus in the muscles they pass between the fibres; in the brain between the convolutions; in the glands between the lobes of which they consist,&c. "By these," says Bichat, "an intestine motion is communicated to the whole organ, which facilitates its functions, and keeps up the activity of its various parts. The sudden cessation of life, when the blood ceases to agitate the brain, proves the immediate connexion between this intestine motion and its active powers. Hence we observe that the vital energies are most decidedly marked in all parts where the arteries are very numerous, as in the muscles; while on the contrary, the vital phenomena are much more obscure in organs of less vascularity, as the tendons, cartilages, bones, and other white parts." Now the nerves generally follow the arteries; they frequently enclose them as in net work, and in some parts form an accessory covering to them—but the action of the nerves in the organic system is unknown, and the reason of this arrangement is not discovered: may they not have a reciprocal influence upon each other, the operation of the fluid derived from the nerves, exciting the action of the arteries, and the continual shock given by the arterial pulsations exciting the action of the nervous fluid? This double arrangement would be very consistent with the other economical contrivances of nature.

DESULTORY FACTS.

I will in this place mention a few unconnected facts which appear favourable to my hypothesis, respecting the identity of the nervous and electric fluids, and may therefore be thrown into the balance, though I cannot regard them in the light of proofs.

A moistened surface exalts the electric energy—in all the organs of sense a moist membrane is interposed between the nerve and the body which is to act upon it.

An elevation of the temperature is required to exalt the electric energy, a certain degree of heat is indispensable to the contraction of the living muscle.

The power of galvanism as well as of pure oxygen, have been tried with success in cases of suffocation.

The organs of the electric eel have numerous and remarkably large nerves.

I can state, from personal experience, that the *start* produced by a sudden and violent noise, is frequently accompanied by a sensation similar to a smart shock of electricity in the part affected, which is the diaphragm.

In galvanic experiments, the application of metals to the organs of sense produces, in each organ, the peculiar sensation for which it is constructed, as taste in the tongue, light in the eye, etc.: so when nerves intended merely for muscular motion are subjected to the action of galvanism, the effect produced is motion in the muscles on which they are distributed.

Perhaps the flash of light which darts across the eyes upon receiving a smart blow either upon the skull or on the eye, may be an electric spark, and a blow or shock of any kind may excite it in any part of the frame, though it will be *unseen* and consequently unknown, unless it passes, as in this case, across the vi-organ.

FACTS EXPLAINED BY THE HYPOTHESIS.

The identity of the electric and nervous fluid might also account for other facts.—As for example the remarkable effect which different states of the atmosphere have upon the health and spirits and even on the clearness and rapidity of the ideas. I have already mentioned, that the atmosphere naturally contains the same proportion of *oxygen*, all over the globe (viz. 28 parts of oxygen out of 100 of atmospheric air), and though it is diminished and consumed, when confined and applied to particular purposes, it is not, in its free state, affected by climate, weather, etc.

EFFECTS OF THE ELECTRICITY OF THE ATMOSPHERE.

But it is not so with *electricity*, and the air contains much more of this principle at one time than at another. The langour, the drowsiness, the debility and relaxation, and the slowness of circulation which we often atribute to the quality of the air and the state of the weather, may therefore be more reasonably referred to a diminished portion of electricity than of oxygen in the atmosphere; while the general irritability of the system from which we sometimes suffer, without any apparent cause, may be attributable to an opposite state of the air, probably also the union of the two electricities in their proper proportions may have some effect upon the animal frame; many sensations seem to shew that the positive electricity which remains uncombined and ever varying in the atmosphere, has some peculiar effect upon the animal muscles. (The electricity that is natu-

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* The organs affected in this case are the lungs, the stomach, and the liver; for which a reason will be found in my hypothesis of the Feelings of the Mind.

* Bichat supposes that this motion arises from the great arterial trunks being placed at the basis of the brain, between the latter organ and the bone. As their distension is resisted by the skull below, it elevates the brain at every pulsation.

rally combined with oxygen, and that is disengaged in the lungs, is *negative*.) Cavalho has observed: "1st, That there is in the atmosphere, at all times, a quantity of electricity; 2d, That the uncombined electricity of the atmosphere, or fogs, is always of the same kind, namely positive; 3d, That the strongest electricity is observed in thick fogs, and also in frosty weather, and the weakest when it is cloudy, warm, and very near raining—but it does not seem to be less by night than in the day time; 4th, That in a more elevated place the electricity is stronger, than in a lower one." Now I can state from my own experience, that in the warm cloudy weather above mentioned, and also in low situations (where by this account the air contains but little electricity) the state of langour and inaction is quite distressing, and that in frosty weather and in elevated situations, a new impulse seems to be given to the whole system.

EFFECTS OF CLIMATE ON THE HEALTH.

Perhaps the diminution of electricity in warm wet weather, might account for the sudden effect which the rains in Africa had upon Mungo Park's soldiers, who fell ill in a few minutes after they had begun. The wet season on the coast of Malabar, shews its effects on the *nerves*, which it even paralyzes to a certain degree, and the complaint is cured by changing the air, and crossing the Baleghaut mountains. The drowsiness induced by passing the Pontine marshes, may be attributable to the same cause, and also the malignant fevers produced by the *malaria* in some parts of Italy, which, it must be remarked, is peculiarly soft and mild. It is probably owing to the quantity of electricity which the air of France contains, that it owes its remarkable elasticity and consequent salubrity. At the same time, a superabundant portion may excite the system too strongly, and cause the feverishness and other distressing feelings experienced by Saussure, in the account of his Journey to the summit of Mount Blanc.

DIFFERENT EFFECTS OF THE TWO ELECTRICITIES.

I must here notice an apparent inconsistency, which admits of explanation. I have ascribed the *regular* and *equable* diffusion of animal heat to electricity, while I have at the same time attributed the *unequal* excitation of the nerves to the action of the same principle; it will, perhaps, be objected that the difference observable in the electr cal state of the air, ought to affect one operation as well as the other; but it must be recollected, that the evolution of heat in the lungs, is supposed to take place in consequence of the chemical union of the cubic inch of oxygen contained in the atmospheric air we inspire, and the carbon present in the blood, by which their opposite electricities are set at liberty: this is a chemical operation, performed with regularity by a small and determinate portion of oxygen: the irregularities in the nervous action above enumerated, I attribute to the *free* and *uncombined* electricity of the atmosphere, which I believe to be also carried into the system, because the *whole* bulk of the air we inspire is to be deprived of its elastic principle in the lungs. This agent therefore differs from the others in its function, its mode of operation in the lungs, and also in its quantity and quality, for it is contained in about forty inches of atmospheric air which we take in at every inspiration, and it is sometimes positive and sometimes negative; whereas the electricity combined with the 1 1-4 cubic inch of oxygen charged in this organ, is always negative. The evolution of animal heat, however, though generally regular, is certainly liable to variation from different causes, and the state of the secretions is more or less influenced by the quality of the air, particularly in nervous subjects. The functions which appear to be the most sensibly affected by the electric state of the air, are the *digestive*, and certain of the mental functions,—an association which will not excite so much surprise, when we recollect that the brain is concerned in both: besides, the personal experience of every dispeptic patient can testify that the morbid state of the stomach affects the performance of the mental operations. I therfore conclude that the organ directly affected by the free electricity of the atmosphere, is the brain; and that through this medium, every operation in which the nerves are concerned, and *as far* they are concerned, is subject to the influence of the climate, wind,* humidity, &c. this influence being most strongly felt in the organs, which receives cerebral nerves, in individuals of a weak or irritable nervous system and in those whose organs have been weakened by any chronic morbid affections. On this subject I shall have occasion to make some further observation in the next chapter.

DISEASE.

If, as I believe, the chemical, mechanical, and mental functions are in a certain degree carried on by means of a nervous fluid, it is not improbable that the greatest number of our diseases may proceed from an inordinate, deficient, or irregular secretion of this important fluid, and the discovery of its nature would consequently be a valuable acquisition to the medical department. We should perhaps find in this case, that most diseases have their origin in the over-excitement of the nervous system, either in the brain, producing that general affection of the nervous system called *fever*, or in the nerves producing local affection; and this over-excitement, would naturally be followed by loss of power, in consequence of the exhaustion of the nervous fluid. Loss of power must be the natural consequence of over-excitement, and even the operation of most narcotics must result from previous over-excitation. We must except the effect produced by the application of azotic gas to the nerves and muscles, which seems to strike them with sudden atony, and consequently causes *instant* death. The peculiar effect of this gas, confirms an opinion I had formed, that one of the purposes of azote is to dilute and moderate the activity of the vital air we inhale; in order to adopt it to this end, its properties must be of an opposite nature. The cause of the phenomena of fever is unknown, but their nature seems, I think, to indicate that they originate in the brain. In fever, the functions in which the brain is most concerned, seem to be chiefly affected. The action of the voluntary muscles, of the nerves of the senses, of the stomach, and particularly the production of animal heat are all deranged, and when the violence of the symptoms increases to a certain height, the association of the ideas is changed, and delirium ensues; this occurs when there is no inflamation or organic disease in the head. I should therefore suspect that the phenomena of fever are caused by an irregularity in the action of the brain, of temporary duration, proceeding from some derangement in the secretion of the nervous fluid—a derangement in the secretory action of any large gland, as the liver for example, produces a general affection of the system. If the brain performs an office of this nature and secretes the fluid which is the most important and uni-

* The east wind has a peculiar effect upon the nerves, which appears to be of an irritating nature. I have invariably observed, that the sensations it occasions are distressing in proportion to the irritability of the system. In coughs, particularly of the spasmodic kind, it frequently causes a relapse. A damp, easterly wind, is sufficient to give the croup to children who are exposed to the pernicious blast.

versal in its operation in the whole animal economy, how much more violent and general must be the consequence of any irregularity in the functions of this organ!

INSANITY.

With respect to insanity, delirium, and the temporary madness produced by the abuse of spirituous liquors, and the violence of passion, I would attribute all such effects to the same cause—namely, an immoderate secretion of the nervous fluid in the brain. If these phenomena could be traced to a physical cause, without having recourse to a morbid action of the *spiritual* part of our nature by way of explanation, the solution of this difficulty would be more satisfactory, for a disease of the immaterial principle appears more mysterious and improbable, than a derangement of the celebral action. It must be allowed that the judgment is affected, but this may, perhaps, be accounted for without supposing any alteration in the state of the immaterial principle, as I will endeavor to shew in the chapter on the mental operations.

CONNEXION OF THE MAGNETISM OF THE EARTH WITH NERVOUS DISEASES.

As some connexion exists (the nature of which has not yet been precisely ascertained) between electricity and magnetism, I shall mention a few observations upon the latter that have led me to suspect some relation between the magnetism of the earth, and the nervous action of the animal body; a relation much more apparent in its morbid, than in its healthy state. I am inclined to think that the various nervous states of the body at different periods of the 24 hours, are connected with the variations in the magnetic force of the earth at such times. It has been ascertanied by Professor Hanstein that the magnetic intensity of the earth is subject to a diurnal variation, decreasing from daybreak till 10 or 11 o'clock A. M. when it reaches its *minimum*, and from thence it increases until it reaches its *maximum* about 3 o' clock A M.

Now I have observed that morbid affections which arise from *too great* an irritability in the system, as catarrh, fever, etc., increases in violence towards the time that this magnetism is rising to its maximum, and this period being passed, viz. 5 o'clock A.M., sleep and perspiration will succeed to the heat and restlessness of the first part of the night. I have also observed that in some complaints arising from langour and a *deficiency* of nervous action, the distressing feelings produced by it have been most apparent when the magnetism was at its minimum, and that the strength and the spirits have risen when it was advancing to its maximum, after which the inclination to drowsiness has returned. These facts I have noticed in some very marked cases for months tog ther. The increased rapidity of the circulation and devlopement of heat towards evening, cannot I should think be attributable to the state of the digestive organs after a full or late meal, for it takes place independently of this circumstance, both in the healthy and feverish state, and in the latter, the little nourishment which is taken is frequently not greater in quantity at one period of the day than the other.*

* The influence of magnetism seemed to me to derive confirmation from the course taken by the cholera in 1831, which took a north-west direction from the shores of the Indian Ocean to the North Magnetic Pole (the exact situation of which has been discovered by Captain Parry), and which had the appearance of being carried in currents, owing to some mysterious cause, either in the air or in the earth. May not this cause have been electric or magnetic?

CONCLUSIONS DRAWN FROM THE ABOVE.

The last mentioned observations afford in my opinion, an additional proof that animal heat is not produced by the evolution of *atmospheric* heat in the lungs, during the act of respiration, for the temperature of the atmosphere is lower during the night than in the day; and yet we find that animal heat increases instead of diminishing, towards that time: it is therefore probable that its formation depends upon a less variable cause.

Such are the observations which have decided my opinion respecting the nature and existence of a nervous fluid and its identity with galvanism: they would probably have been more numerous, if my information with respect to facts, had not been drawn from authors decidedly hostile to any hypothesis of the kind. In the course of my research, I found that when galvanism was first discovered, its connexion with the nervous action was suspected, and that the notion had been afterwards rejected.—But the nature and powers of the electric fluid were not at that time so well known, and though they are not yet fully ascertained, the progress of knowledge in this respect affords more rational grounds for the adoption of the opinion I have stated. I shall await its conformaiton or confutation, and now, I shall endeavour (without referring to the particular nature of the nervous action) to trace its connexion and dependence upon the *mental* action. For this purpose I have diligently perused my own mind without the assistance of any other metaphysical book, both in order to develope my hypothesis unbiassed by the opinion of others, and to exercise my own faculties, by the habit of abstraction and intense thought which such a plan required.

TERRESTRIAL MAGNETISM.

ELECTRIC TELEGRAPH.

We were highly gratified yesterday, by witnessing the practical operation of the Electric Telegraph invented by our countryman, Prof. S. F. B. Morse—of which all our readers have heard, but with the principle and beautiful operation of which, we apprehend, but few are acquainted. We regard it as among the most wonderful, and, prospectively, the most useful applications of science to the great purposes of life, which the present age has seen. It proposes, and for aught we can see, with good ground of success, to announce in every part of the country to which it may be extended, any information with unerring certainty and at the same instant of time.—This stupendous result is to be accomplished by the power of galvanism; and the instrument by which it is to be done, though perhaps difficult of description, is yet simple, and its operation easily understood. In the first place, by an alphabet, in which the twenty-six letters are represented by different combinations of the *dot* and the *dash*, the communication is written upon paper at the remote extremity of the Telegraph. The machine by which this is directly done is small and simple, moved by a weight like clock work, the slip of paper being wound about a cylinder and carried under the style by the operation of the machinery. To the style or pen which makes the mark is attached, in a convenient method, a piece of iron which rests just above a mass of soft iron, which is instantly rendered a magnet by the transmission of the electric current. The operation of the Telegraph is therefore easily seen. Suppose one extremity be in Washington and the other in New York—the communication being formed by

protected wires traversing the intermediate distance. A person at Washington wishes to convey news to this city. He has before him the two extremities of the wires and the means of sending along them a current of electric fluid. The instant he brings them together, the soft iron mass in New York becomes a magnet—the iron above it is drawn towards it, and the style to which it is attached is pressed upon the paper, and this being carried forward by the machinery which is at the same instant, by another magnet, set in motion, receives the impression. As soon as the two wires are separated, the soft iron is no longer a magnet—the iron above is no longer attracted, and the pen no longer rests upon the paper. By bringing the wires in contact and instantly separating them, a *dot* is made; by keeping them in contact for a little time, a *dash*; and by the combination of these two all the words in the language may be written and read.

By the most accurate experiments that have been made, it is found that the electric fluid moves at the rate of 288,000 miles in a second; and as this is the only limit to the speed with which news may be transmitted by Prof. Morse's Telegraph, it is evident that for all terrestrial purposes it promises all that the most *enterprising newspapers* could desire. fifty letters can easily be made by it in a minute—so that the President's Message or any other document could easily be sent to any part of the continent faster than a compositor could set it up. The modifications to which it may be subjected are almost endless. Prof. Morse has already invented a method to make his Telegraph *speak* as well as write; another to enable the locommotive upon a railroad track to 'report progress' at every mile or furlong of its career, at the most distant extremity, without the aid of any man; and a third whereby the same thing may be announced in all the cities of the Union at the same instant.

The advantages of this Telegraph over that of Wheaston, of which so much has been said, are evident and marked. It will be recollected from our description of that invention, that the letters or words are indicated by the direction given to a magnetic needle by the electric current. In this case, then, unless some one were watching at the instant, the neeble would change its position and the message be lost. By Prof. Morse's Telegraph the words are *written down*, letter for letter, and may be read as well a year as a minute afterward. It is found too, that the passage of a cloud charged with electricity over the instrument completely deranges the operation of the needles in Mr. Wheaston's instrument, and that in a certain state of the atmosphere it is therefore entirely worthless. Nothing of this kind has the slightest influence on the Telegraph of Prof. Morse. Its operation is always instantaneous, certain and complete. It has already been fully tried for a distance of nearly forty miles, and is just as effective as at a distance of so many feet.

The immense importance of this invention must be seen at a glance;—it will be a powerful engine, for good or for evil, as those into whose hands it may fall may be disposed to use it. We understand that Prof. Morse intends immediately to submit his experiments to Congress with a view of asking an appropriation to enable him to perfect his arrangements, if the Government shall not see fit to purchase it for its own purposes. We trust that it will receive the attention it deserves, and that out of a regard to their own interests as well as in justice to the distinguished inventor, the authorities at Washington will secure its control. If it should pass into the hands of private companies it might prove a formidable rival to the Post Office Department in some of its most important functions, and in subserving the purposes of stock-jobbers and gamblers, might be productive of infinite mischief and injustice. Professor Morse has already spent upon his invention years of ardent labor and thousands of dollars from his private purse; and though a Committee in the House has once reported unanimously in favor of an appropriation of $30,000 to establish a line of Electric Telegraphs, nothing decisive has ever been done by Congress.—We trust the invention will, as soon as possible, receive the attention its high importance and utility so justly merits.—*Tribune.*

The following account of this truly wonderful invention occurs in Dr. Lardner's lectures, and for the reader's gratification we give the remarks entire:

"Such are some of the gifts which science has conferred upon art. I will now mention one or two others; and one of the most recent is that of the electric telegraph, invented by Wheatston and now employed in London. He had devoted to the subject of electricity much time, and its first fruits was this discovery. Its object is, by the agency of electricity to communicate between two distant places in a very short space of time. In England it has already been applied along a rail-way for some hundred or more miles. All that is necessary is for a person to go to the office at one end and ask his question; in about three minutes he receives an answer. I chanced myself, while engaged in railway operations, to witness an operation of this kind, and I shall not soon forget my astonishment at the result. I was standing near the office of the Great Western rail-road when a passenger got out from the train of cars which had just arrived, over forty miles from London, went into the office and told the clerk that he wished to send by the returning train a note to his hotel in London concerning his cloak and umbrella he had left there. 'Yes sir,' said the clerk, 'wait a moment and I will give you the answer to your note.' He turned to a small apparatus in a corner of the room. and in about three minutes told the man that his cloak and umbrella had been taken care of and would be sent by the next train.

"The method of the operation of this invention is extremely simple, and is easily rendered intelligible. I have already explained the nature of the galvanic current which is produced when zinc and copper or other metals are brought into contact. The electricity evolved at the surface of contact is decomposed—the positive taking one direction and the negative the other; hence, if two wires be provided and put in contact, the one with the positive and the other with the negative fluid, these two currents will flow along them for any distance—even around the globe. Now suppose a wire be enclosed in glass tubes or surrounded by some other non-conducting substance and passed the whole distance from New York to New Orleans, a needle placed above the wire at New Orleans will instantly turn at right angles to it upon sending along it the electric current. This would be the case with any number of wires. Thus we have a method of communicating instantly between distant places. The next thing is to devise some means of rendering the communication intelligible. A variety of signals have been employed for this purpose. In Wheatston's telegraph the letters of the alphabet were employed, and the mode of conducting the communication was this: At each end of the route was provided a lozenge marked off into parallelograms, at the angles of which were placed the different letters of the alphabet. Magnetic needles were placed above the wires in such a position with respect to the figures that any two of the needles may

be made to point to each of the letters by the action of the fluid, which on being passed along the wires causes them to turn at right angles to the wires.—Now in communicating from end to end, the persons who make the first advances passes a current along a wire which lets go a bell at the other extremity; thus a wire touched at New Orleans would let go a bell here, and its language is, "I am going to send you a message—so look about you.' The person receiving this warning sends back a current which lets go a bell at the other end, saying in reply, 'Go on, sir, I am listening to you.' Then they begin to spell out the words—if that is the method adopted. If E be the first letter, then two wires are touched, which will cause two needles at the other end to point to that letter on the lozenge, and so for all other letters. In general practice fewer letters are required than those of the alphabet.

"The manner in which these telegraphs are constructed in England is this: the wires, of which there are five or six, are placed in glass tubes and buried several inches in the ground, beside the rails. One is now nearly finished from London to Liverpool, and by it messages are transmitted with astonishing rapidity. For commercial purposes these telegraphs are of especial importance."

THE MAGNET.

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THE MAGNETIC NATURE.

HAVING assumed, that animal life is nothing more nor less than Magnetism in an organised form, our readers will doubtless expect to find in our columns some of the reasons on which this conclusion has been founded. And it certainly would afford us great pleasure to gratify this expectation to the fullest extent; but it must be remembered, that the limits of our work will not admit of a treatise on this, or any other subject. Our main object is to give such facts as may enable each one to judge for himself with regard to the correctness of our conclusions.

The facts adduced in the two preceding numbers of the Magnet, under the head of "Sleep-Waking," should be examined thoroughly; and, in addition to that class of facts, we have numerous others, which we shall continue to offer for the consideration of the curious. The articles in the present and preceding numbers, under the head of "Nervous Influence," though we do not endorse every thing said in them, yet they will be found, we think, to contain many important facts, which tend to the corroboration of our position, with regard to the Magnetic nature of human life.

We are aware, that some of our readers will feel quite unwilling to allow us to *assume* any thing, in matters of this kind. But are they not unreasonable in this? How do you ever attempt proof, in any case, until *you first assume* something? If you would convince us that Phrenology is false, you, of course, assume in the outset, that it is not true; and you assume, also, that we are familiar with the terms you use for accomplishing your purpose. We beg, therefore, for no extraordinary indulgence, in asking consent, for the time being, to the following:

1. That the Electrical forces constitute the *all-pervading* AGENT, by which the Great First Cause accomplishes his purposes with matter. By them, "worlds on worlds" are kept in motion, and made to perform their appropriate revolutions with unerring regularity. By these *attracting* and *repelling* FORCES, all the works of Nature, animate and inanimate, go forward, in obedience to his Will. They are the cause of motion, throughout the universe of God.

2. That, to a limited extent, the Deity has subjugated these forces to the MIND of *man;* and in the exercise of this power, the nervous system is affected, the muscles contracted or extended, and the organs of the body made to perform their various functions. Indeed, all the motions of the human system depend on these forces; but we now refer particularly to the *exercises of the mind.*

The idea of the beginning of motion, (says Locke on the Human Understanding,) we have *only from reflection, or what passes in ourselves;* when we find, by experience, that barely *by willing it*, barely by a *thought* of the mind, we can move the parts of our bodies which were before at rest. But this power of the human mind, in the movement of matter, is in constant exhibition before our eyes, and hence it excites no astonishment, though, indeed, we can no more explain how it is, than we can explain the laws which govern the electrical forces.

3. The brain is the organ of the mind; and the substance of which it is composed extends throughout the entire system. The elements of sensation seem to be produced by a modification of the magnetic forces in the ganglions of phrenic life. They are *repelled* from the convolutions of the brain to the skin and serous surfaces of the body by one set of nerves, while the sensations produced in the skin and serous surfaces of the body, are *attracted* to the convolutions of the brain by another.

Though the nerves have been supposed to be the *conductors* which convey impulses to and from the brain, yet it should be remembered, that they are not always in the same conducting condition; and the magnetic forces are not conveyed always by the nerves, nor, in certain cases, are they dependent upon them at all, as far as we know. It is certain, that the nerves do not always possess the same sensibility or susceptibility for receiving and conveying impulses. Thus, in sleep, in a reverie, or when relaxed by fatigue, we know that their power is not the same. At other times, the power of the nerves seems greatly augmented; as when under the excitement of *fear* or *hope*, or when the *mind* is highly excited, a corresponding effect is produced. Persons labouring under peculiar derangements of the system, have been known to manifest most astonishing nervous sensibilities.

There is precisely as much *mystery* in the act by which you raise your hand, as there is in the laws of galvanism. For who can tell *how* it is, that matter is made to obey the volitions of the human mind? And the only reason why every motion of the body, which is made in obedience to the human WILL, does not excite our wonder, is, because the thing is so common. But, that the mind is affected by the nervous system, and vice versa, is too well known to be doubted or disputed.

However, the degree to which this power may be, and has been exerted, is not so generally understood. We refer, now, both to the influence one's mind may have over his own nervous system, and, also, to the influence

which it may have over the nervous system, and, consequently, *over the mind of another person.*

But first let us notice a few facts, which show the influence of the imagination over one's own system.

The case of the criminal who was condemned to die, is well known. The physicians obtained leave to experiment upon him in the following manner: He was blindfolded, and made to *believe* that he was to be bled to death. A vessel of water was placed near him, and when his arm had been operated upon, precisely as if a vein had been opened, the water was set to running, so that the noise of the small stream sounded like the blood issuing from the arm. In a few minutes the patient began to grow pale: he then complained of faintness. His pulse grew more and more feeble, till in a short time he actually expired, and this, too, when not one drop of blood had been drawn from his veins.

A skilful physician recently related to us the following:—

A man called on him for medical advice, complaining that all the medicines he had taken for some time previous, had the effects of an aperient. He seemed to think he had been imposed upon by the doctors, and begged to know of our friend Dr. W. if *he* could not give him something which would benefit him without producing this effect. The Doctor assured him that he had no doubt at all, but that he could gratify him in this respect. Accordingly, he retired to another room, and prepared a few pills, entirely of *wheat bread*, and handed them to the patient, with suitable directions. In the course of a few days, the Doctor fell in with the patient, and received from him a severe castigation. "Why, Doctor," said he, "those *pills* you gave me physicked me almost to death. I never took any thing before, so powerful!"

We reminded the Doctor that he had made a mistake in giving the patient *pills* of any kind. Had the same substance been given in the form of powders, probably it would have produced no effect at all.

We had the following from a scientific gentleman of this city. A little daughter of his was indisposed, and he gave her, for an aperient, a little pure water slightly coloured with wine. She thought it was tincture of rhubarb, and it affected her accordingly.

We have a patient at the present time, a very intelligent lady, who is so susceptible, that she will drink from a tumbler of clear water, and believe what she drinks to be lemonade coffee, brandy, or any other liquid which we tell her it is; and this she does, in the waking state. We once gave her a tumbler of water slightly coloured with molasses, telling her it was senna; and she declared it to be senna, on drinking it, and it produced the desired effect.

Burton (Anat. of Mel. vol. 1, p. 221,) says, a person who has often taken nauseating medicine, will be nauseated by the *thought* of receiving it again; and a *thought* has often proved a powerful emetic. And not only has a thought proved an emetic, but the sight of a distasteful cathartic has for some time operated the same, as when that medicine is actually received into the stomach, as testified by many experienced physicians, especially as related by Cornelius Agrippa (out of Gulielmus Parisiensis). In another place he says:

"Men, if they see but another man tremble, giddy, or sick of some fearful disease, their apprehension and fear are so strong in this kind, that they will have the same disease. Or if by some soothsayer, wise man, fortune teller, or physician, they be told they shall have such a disease, they will so seriously apprehend it, that they will instantly labour of it—a thing familiar in China (saith Riccius the Jesuit). If it be told them that they shall be sick on such a day, when that day comes they will surely be sick, and will be so terribly afflicted, that sometimes they die upon it."

A fact is stated in Lockhart's Life of Sir Walter Scott, which shews the power of the mind over the nervous system, to prevent, at will, the usual effects of medicine.—It is related by Scott himself, of a common farmer, whose father had given him a quantity of laudanum, instead of some other medicine. The mistake was instantly discovered; but the young man had sufficient energy and force of mind to resist the operation of the drug. While all around him were stupid with fear, he started up, saddled his horse, and rode to Selkirk, a distance of six or seven miles, thus saving the time that the doctor must have taken in coming to him. His agony of mind prevented the operation of the opiate until he had alighted, when it instantly began to operate. He was, however, perfectly recovered.

Some ten years ago, while labouring under a severe inflammation of the throat and lungs, a friend prepared for us a mixture of molasses and camphor. Soon after taking it we began to feel strangely, and, on inquiry, found that we had actually eaten a piece of the gum, larger than a nutmeg. We felt, of course, a little alarmed, but immediately *resolved* that it should not overcome the nervous system, inasmuch as we had an appointment to appear before a public meeting that evening. We walked, during an hour or so, over the Washington parade ground, resisting all the while the action of the camphor by a determined resolution not to be overcome by it; and we, without any difficulty, succeeded, to the no small surprise of the friends who had become cognizant of what we had done.

We have before stated it as our opinion, that all disease of the body arises from a derangement of the magnetic forces. Admitting this to be correct, it will readily explain how it is that diseases are often cured, as they seem to be, by the exercises of the *mind.* That diseases have been cured by the action of the mind on the nervous system, has long been admitted by the highest scientific authorities. Without attempting to quote from numerous medical works, we have space merely for a few extracts, which we take, promiscuously, from such sources as are now at hand.

Rev. John Wesley, in his Journal for May 12, 1759, makes the following remarks:

"Reflecting, to-day, on the case of a poor woman who had continued pain in her stomach, I could not but remark the inexcusable negligence of most physicians, in cases of this nature. They prescribed drug upon drug, without knowing a jot of the matter concerning the root of the disorder. And, without knowing this, they cannot cure, though they can murder the patient. Whence came this woman's pain? (which she never would have told, had she never been questioned about it)—from fretting for the death of her son. And what availed medicines, while that feeling continued? Why, then, do not all physicians consider how far *bodily disorders are caused or influenced by the* MIND; and in those cases where they are

utterly out of their sphere, call in the assistance of a minister; as ministers, when they find the mind disordered by the body, call in the assistance of a physician? But why are these cases out of their sphere? Because they know not God. It follows, no man can be a thorough physician without being an experienced Christian."

And here is another testimony from Wesley, which very much corroborates the views given above, and in our preceding articles:

"The nerves are the conductors of this ethereal fire, vulgarly called animal spirits. If this is duly diffused through the whole body, we are lively and vigorous; if it is not (which, without exercise, it cannot be,) we soon grow faint and languid. And if other disorders do not ensue, those termed nervous surely will, with that whole train of symptoms which are usually comprised in what is termed *lowness of spirits*."

"Something may be allowed to irregular passions; for as long as the soul and body are united, these undoubtedly affect the body, the nerves in particular. Even violent joy, though it raise the spirits for a time, does afterwards sink them greatly. And every one knows what an influence *fear* has upon our whole power; nay, even 'hope deferred makes the heart sick,' puts the mind all out of tune."—*Wesley's Works, vol.* vi. *pp.* 567--579.

The late Dr. James Gregory had ordered an opiate to a young man, to relieve sleepless nights, under which he had suffered in convalescence from fever. He informed the patient that he had prescribed an *anodyne*, to be taken at bedtime; but the invalid being somewhat deaf, understood him to say an *aperient*. Next morning, on the doctor's inquiring whether he had slept after the anodyne, he replied, "Anodyne! I thought it was an aperient, and it has indeed operated briskly."

A female lunatic was admitted into the county asylum at Hanwell, under Sir William Ellis. She imagined that she was labouring under a complaint that required the use of mercury; but Sir William, finding that the idea of that disease was an insane delusion, yet considering that flattering the opinion of the lunatic to a certain degree, would be favourable to the recovery of her reason, ordered *bread pills* for her, and called them mercurial pills. After a few days she was salivated, and the pills were discontinued. On again ordering them after the salivation had subsided, she was a second time affected in the same manner; and this again happened on the recurrence to the use of the pills a third time.

A physician states, that a lady under his care assured him that opium, in any form, always caused headache, and restlessness, and vomiting on the following morning; and on prescribing laudanum for her, under its usual name, "tinctura opii," he found that her account of its effects were correct; but on prescribing it under the term "tinctura thebaica," which she did not understand, (she read every prescription,) it produced its usual salutary effect, and was continued for some time without inducing the smallest inordinate action.

And why should not the emotions of the mind produce disease, when we know that death has been produced by the same cause?

It is recorded of a Roman mother, that she instantly died of joy, on meeting her son as he returned from the battle of Cannæ, where she supposed he had been slain by the veterans of Hannibal.

A lady in Kentucky, the wife of David Prentiss, Esq. some time since fell dead in an instant, while reading a letter which brought her news of her husband's death.

The *Areekee* are a sect among the heathen in New Zealand, described by Mr. White, a Wesleyan Missionary, we believe, who says: "They pretend to have intercourse with departed spirits, by which they are able to kill, by incantation, any person on whom their anger may fall; and it is a fact," adds Mr. White, "that numbers fall a prey to their confidence in the efficacy of the curses of these men, and pine under the influence of despair, and die."—*Miss. Her. vol.* 23, *p.* 314.

Burton, before quoted, speaks of a Jew in France, who walked by chance, in the dark, over a dangerous passage or plank, that lay over a brook, without harm; the next day, perceiving what danger he had been in, he dropped down dead. He further records, that at Basil, a child died through fright, occasioned by seeing a malefactor hung in gibbets; and that in the same town, beyond the Rhine, another child died on seeing a carcase taken from the grave.

These effects were unquestionably produced by the power of the mind over the magnetic forces of the human system; and, as far as they prove anything, they prove that the derangement of these forces results in disease and death.

MAGNETIC EXAMINATIONS.

We are asked to state what we mean by Magnetic and Phreno-Magnetic Examinations. Our correspondents must have patience. It is not possible for us to give all the light which is to shine on the subject of Magnetism, in two or three numbers of the Magnet: volumes would hardly suffice to do justice to all which we might feel disposed to communicate, tending to illustrate the mysteries of human life. But as fast as time will allow, we shall fill the columns of this work with a detail of such facts as we may reasonably judge will be most acceptable and profitable to our numerous readers. We have a vast amount of facts yet to communicate, demonstrating the existence of the sympathetic points of the different portions of the body, and the new mental organs, not known heretofore. These facts go far towards proving, as we think, the positions laid down in our last with regard to the nature of disease, and the curative efficiency of Magnetism, or, as Dr. Caldwell calls it, "the Cerebral Medicine."

But to the subject of this article. We have long been fully satisfied, that the most appropriate, and perhaps the only proper application of what we call Human Magnetism, is to the description and cure of disease, and to the delineation of MIND; and the best methods for its development, the power of *clairvoyance*, as it has been called, is nothing more nor less than the exercise of that *sense* by which we become *cognizant* of *mind* and things. It is that sense by which we obtain knowledge of every thing which is knowable, and which seems to be peculiarly adapted to the investigation of every thing which relates to the human system. That certain persons have sometimes been able to describe their own anatomy, and the organs diseased, without the use of the eye, and who had no previous knowledge of human physiology, is a matter of fact which no intelligent physician will deny. The cases detailed under the head of "Sleep-Waking," in

previous numbers of our work, are as really wonderful as any instance of *clairvoyance* on record. There are two considerations which have produced the conviction above stated, as to the appropriate use of this peculiar *sense*. The first is, that all persons in a state of *somnipathy*, as well as those called natural sleep-wakers, have always been known to describe diseases, and the physiology of the human system, better than they could describe anything else. Every person who is familiar with the induced sleep, will agree in this statement. We have had the testimony of some of the best and most experienced magnetizers, to this fact. They all agree, that their subjects describe, with the greatest ease and accuracy, when their attention is directed to the human body for benevolent purposes. It is true, some allowance should be made for the manner in which patients have been educated, if we may so speak; that is, somnipathists may be trained into habits of doing various things; but we are certain, that when this sleep follows an effort for their own or another's good, they will be more accurate in describing disease, or the mental powers, of themselves or others, than in their descriptions of anything besides. If we are right in this supposition, it follows, that it is a perversion of this faculty when it is made to attempt descriptions of various articles, merely to gratify an idle curiosity. And it may account for the numerous failures which always occur in the attempts to produce what is called *clairvoyance*. As we know but few of what are called *clairvoyants*, have ever been able to give descriptions of *things* which neither they nor the operator ever saw, which were strictly true. Two-thirds of these may be set down as failures, and half of the other third will be found to be wholly or partially untrue, while the remainder is given in such terms as often forbid our setting the description down as plain, *unmixed*, matter of fact.

The other consideration to which we have alluded, is the fact that most somnipathists are not only averse to any attempts at clairvoyance of things, but these attempts not unfrequently are followed with injury to the patient. An operator called on us a short time since, to relieve a patient from a fit of *insanity*, brought on by his attempt to make her clairvoyant; but no such mischiefs follow the legitimate application of this agency. Where you find a natural sleep-waker, or one in a state of somnipathy, their descriptions of disease, and of the mental character of others, will be spontaneous, or follow the wish of the operator, provided the patient be properly managed. One of the first phenomena noticed by Puyseger, (the first who produced a state of somnipathy of whom we have any account), was the knowledge which his patient seemed to have of his own disease; and from that time to the present it has been found, that all persons in this state more readily describe their own or another's disease, or the mental dispositions of others, than any thing which is not connected with the health or character of any one. We have two subjects at the present time, who describe diseases with an accuracy truly astonishing. And what is still more remarkable, they describe the diseases of persons whom they never saw. One lady in this city has described accurately the cases of some fifteen persons, whom she never saw, and of whom she knows nothing in her waking state; and of a part of this number, we knew nothing at the time!

Sometimes we have the persons present who are to be examined. In these cases, the somnipathist puts his hands on the head, and traces from different portions of the brain to the parts affected; and in no case have we ever known them to fail in finding and describing *the* difficulty which constituted the disease; and this they have often done, when physicians had failed altogether in their attempts to tell what the malady was, and also in their attempts to remove it. They tell us, also, in many cases, what means will prove the most successful in effecting a cure; and we could produce the testimony of scores whom we have examined in this way, who would testify that these descriptions of their cases by a person in the somnipathic state, were more correct and satisfactory than any they ever had from physicians or others.

In the same way we have obtained the most remarkable and accurate delineations of character and the mental powers of different persons. This may seem to be mere fancy to some, we are aware; but we speak the words of truth and soberness, and we could refer to hundreds who have been correctly described in this way, in this city. The first thing of this kind that attracted our attention, was the fact, that one of our subjects never failed to tell us the *feelings* and *peculiar dispositions* of every one who was put in communication with her; and some time after we had commenced the course of cerebral experiments heretofore described in this work, we found one of our patients excessively fond of putting his hands on the head of different persons, and when he did so he instantly *sympathised* with them in the feelings of the different organs, and would tell the *very thoughts* which were at the time, or had been, passing in their minds!!

The following is a specimen: it is from the minutes of our experiments commenced in December, 1841, in connexion with Dr. Sherwood and Mr. Fowler. It is a description of the head of Mr. J. G. Foreman, a lecturer on phrenology, who was present, and who had for the first time the day before, witnessed the excitement of the phrenological organs by magnetism. After having given a correct description of his head, she gave the following as a specimen of the controversy which had been going on during the day between his mental organs, on the truth of what he had seen:—

Causality. "I don't know about it—I must examine it further."

Faith. "Yes, it is true."

Conscience. "But, is it *right?*"

Human Nature. "I don't know, there may be deception in all this."

Acquisitiveness. "Can I make anything by magnetism? How will it affect my purse? can I make money by it?"

Faith. "Yes, I must believe it."

Causality. "Hold! I must inquire more about it."

Comparison. "Wait till I can compare it with other things I know, and then I can tell better."

Mirth. "Ha, ha, ha! Faith has the majority."

"The organs have been in such a conflict, that his brain is much heated and excited."

Language of Ideas. "Says nothing, but like the girl's beau, looks glorious thoughts."

Mr. Foreman will bear us witness, that he was both amused and not a little surprised, on hearing the thoughts

of his mind, which he himself had never uttered, so correctly described by another.

Nor is this power confined to persons in a state of somnipathy, or natural somnambulism. Persons have been known, in different ages, who have possessed a remarkable faculty for arriving at a knowledge of the diseases and characters of others. In some this faculty seems to be natural, and in others to have been acquired. Mr. L. N. Fowler, one of the best practical phrenologists we have ever known, when examining the heads of different persons, informed us, that he frequently had an *intuitive* sense, not of their general character merely, but of the present and particular exercises of different organs; and he often told his subjects the thoughts which were at the time passing in their minds. That this is not mere fancy, we know as well as we do any other matter of fact which is an object of *consciousness*.

We do not mean to be understood as saying, that this knowledge is general, by any means; but only that it is peculiar to numbers whom we have found. One, for instance, has his organs excited by our placing our finger upon the same organ in our own head; and others we have found, who became excited, and partook of our own emotions, on placing their fingers on any of the organs in our head; and we have another subject, a few of whose organs we have excited in the waking state by merely willing it, while looking him in the eye. How far this could be done in others, we have not had the opportunity of determining by actual experiment.

CAUTION REPEATED.

We feel compelled to repeat the caution we have before given, to persons disposed to experiment in the use of Human Magnetism. We know it is quite common for those but partially familiar with this subject, to recommend and urge their friends and others to attempt the production of the magnetic phenomena, merely to gratify their curiosity, or to satisfy themselves of its truth.

This is, certainly, wrong; and we have seen so many mischievous results from these attempts, that we feel it incumbent on us to call attention to the caution published in our first number.

When any injury follows the use of medicine which has been administered by an intelligent physician, people do not set it down to the discredit of science, but we infer from such cases, the necessity of care and extensive information, by which such injuries may be avoided. Or, if the mischief be done by the ignorance of the practitioner, he is blamed, of course—and punished, it may be, by the tribunals of justice.

But it is still worse when mischiefs follow from mismanagement in the use of Human Magnetism. From the deep-rooted prejudice which every where prevails against the use of this agency in the cure of diseases, all the mischiefs which may result from its misuse, are attributed to the agency itself; and thus greater injury seems to be done to truth, than in the cases above stated.

We were recently called to the following case. An operator had succeeded in putting a person to sleep. The attempt had been made a number of times, and from curiosity merely. But, finally, he found it impossible to remove the sleep, and convulsions and insanity followed. We have known a number of cases of this kind. The physicians and friends, of course, lay all this mischief to magnetism. It should be attributed to the *ignorance*, and in some cases to the imprudence, of the operators.

We know that the most intelligent and skilful may sometimes fail; and if these are not always successful, it should caution others never to attempt to produce a state of feeling in another, which they *may* find themselves unable to control. If you have health, and a heart for this work, and have made yourself familiar with the rules laid down in our second number, *commence with the sick*: that is, let your efforts be made, not to produce the magnetic sleep, nor any of its phenomena, but to relieve the suffering. Evil could scarcely be anticipated from such attempts, provided the motive were what it should be, and the process were agreeable to the patient.

We have stated, that the effort to magnetize should never be made in promiscuous company; and we may add, that it should not be attempted, *without some other person being present* with the operator and the patient.—The person who submits to be magnetized by another, of whose *health* and other *necessary qualifications* he is not well assured, runs a hazard far more dangerous than the patient who merely swallows the nostrum of the quack, of whom he knows nothing.

Persons magnetised should know, that just so far as this operation is successful, just so far he receives the *impress*, as it were, of the operator's *heart*. The *mental* disposition of the magnetiser has every thing to do with the *impression* made on the person who is put into the magnetic state. Of this fact we have had numerous *demonstrations*, which leave no room for the shadow of a doubt. All, therefore, should understand what results *may* follow, and those which *do always* follow, the influence which is exerted upon them by Human Magnetism. That influence may, and should be, good, and nothing but good; but this will depend, of course, upon the health, skill, and *motives* of the operator.

MAGNETISM IN EVERY THING.

If our assumptions with regard to the extent of the magnetic forces be correct, and if these forces constitute, as we believe they do, all animal life, we shall find an easy solution of some of the most interesting phenomena involved in human existence. All action is by these forces. The power of speech and thought, all the influences we exert, whether for good or evil, all the feelings of our own minds, and all those we produce in others, are attributable to no other agency than these same magnetic forces.

And yet persons often marvel, and ask, with the greatest astonishment, what magnetism can be, and whether it be possible for *any* one to influence another by magnetism? We shall yet find, that we neither feel nor exert any other influence than what is conveyed by magnetism. It is the *life* of our physical and mental organs, and the medium by which ideas are communicated from one brain to another. It is the agency by which one mental organ speaks to another, and by which *mind* acts upon *mind*. It speaks through the eyes, the features, and through the

human voice. We have heard of a father, who, when his children became engaged in a dispute, would at once require them to unite in a song. The blending of their voices in harmony was soon found to subdue their angry and contentious feelings. There is a native, spontaneous, unsought music: it consists in the tones which issue from the voice which overflows with melting love. It has been well observed, that a blow may be inflicted on a child, accompanied by words so uttered as to counteract entirely its intended effect. Or, the parent may use language in the correction of the child, not objectionable in itself, yet spoken in a tone which more than defeats its influence.

We are by no means, says the same writer, aware of the power of the voice in swaying the feelings of the soul. The anecdote of a good lady in regard to her minister's sermon, is to the point. She heard a discourse from him which pleased her exceedingly. She expressed to a friend the hope that he would preach it again. "Perhaps," said her friend in reply, "he may print it." "Ah!" said she, "he could not print it in that *holy tone*." There is a tone in the pulpit, which, false as is the taste from which it proceeds, does indeed work wonders.

Let any one endeavour to recal the image of a fond mother, long since at rest in heaven. Her sweet smile and ever clear countenance, are brought vividly to recollection. So, also, is her voice; and blessed is that parent who is endowed with a pleasing utterance. What is it which lulls the infant to repose? It is no array of mere words. There is no charm to the untaught one in letters, syllables, and sentences. It is the sound which strikes its little ear, that soothes and composes it to sleep. A few notes, however unskilfully arranged, if uttered in a soft tone, are found to possess a magic influence. Think we that this influence is confined to the cradle? No: it is diffused over every age, and ceases not while the child remains under the parental roof. Is the boy growing rude in manner, and boisterous in speech? We know no instrument so sure to control these tendencies, as the gentle tones of a mother. She who speaks to her son harshly, does but give to his conduct the sanction of her own example: she pours oil on the already raging flame.

In the pressure of duty, we are liable to utter ourselves hastily to our children. Perhaps a threat is expressed in a loud and irritating tone. Instead of allaying the passions of the child, it serves directly to increase them:—every fretful expression awakens in him the same spirit which produced it. So does a pleasant voice call up agreeable feelings. Whatever disposition, therefore, we would encourage in a child, the same we should manifest in the tone with which we address him.

There is nothing more desirable in a daughter, than intelligence joined to a gentle spirit. The mind is fashioned and furnished, in the main, at school; but the character of the affections is derived chiefly at home. How inestimable is the confidence of that mother in producing kind feelings in the bosoms of her children, who never permits herself to speak to them with a loud voice, or in harsh, unkind tones.

And who needs to be told, that there is magnetism in a *kind* look, or that sympathy and tenderness always reach the heart, when these feelings are expressed in the tones of the voice?

Indeed, the truth of the statement at the head of this article, could be verified in ten thousand forms. Often, says another writer, events long since forgotten, are revived in a manner we cannot explain. But our experiments, we think, will shed some light on phenomena like these, for instance:—

In the act of drowning, persons have had all the transactions and feelings of life portrayed before them, as if they had every one been written out with the nicest exactness on the tablet of memory. And a certain writer tells us, that when under the influence of stimulants, he felt as though he were living over the whole of his past life in the course of a few moments. The extended train of thought, and thoughts too of the most subtle and evanescent kind, which had long been blotted from the page of remembrance, were brought back to his view in all the freshness and vividness of original conception. The minutest circumstance, the finest thread of mental association, stood forth in distinct and visible clearness. A remarkable instance of the same description occurred not long since in Germany. We give an abridged statement of it, from a celebrated writer, recently deceased:

A young woman of four or five and twenty, who could neither read nor write, was seized with a nervous fever, during which she continued incessantly talking Latin, Greek, and Hebrew, in very pompous tones, and with most distinct enunciation. The case had attracted the particular attention of a young physician, and by his statements, many eminent physiologists and psychologists visited the town, and cross-examined the case on the very spot. Sheets full of her ravings were taken down from her own mouth, and were found to consist of sentences coherent and intelligible, each for itself, but with little or no connection with each other. After considerable search on the part of the young practitioner, he discovered that his patient had, at the age of nine, been charitably taken by an old Protestant pastor, and that she had remained with him some years, even to the old man's death. With great difficulty the physician discovered a niece of the pastor's, who had lived with him as his housekeeper, and inherited his effects. She remembered the girl, and related that her venerable uncle had been too indulgent to her. Anxious inquiries were then made concerning the pastor's habits, and a solution of the phenomenon was soon obtained; for it appeared that it had been the old man's custom for years to walk up and down a passage of his house, and read to himself with a loud voice out of his favourite books. A considerable number of these were still in the niece's possession. She added, that he was a very learned man, and a great Hebraist. Among the books were found a collection of Rabbinical writings, together with several of the Greek and Latin fathers; and the physician succeeded in identifying so many passages with those taken down at the young woman's bedside, that no doubt could remain, in any rational mind, concerning the true origin of the impressions made on her nervous system.

SUSCEPTIBILITY.

We use this term to signify that quality in the temperament, which renders a person more or less easily influenced by what are called the magnetic passes.

Though every one has the magnetic nature, yet we find some whom, as far as we know, it is not possible to influence at all; at any rate, they can be influenced only in a very small degree.

We have been quite solicitous to ascertain, how far we could be influenced by this agency, and a number have attempted, accordingly, to magnetize us. And, what may seem a little remarkable, we have known two persons to sink into the magnetic sleep themselves, while operating upon us. One very large and healthy gentleman attempted, but soon complained that it gave him a severe pain in his side, and so he gave it up in despair.

It is possible that one of the right temperament, by repeated trials, might be able to succeed; however, we have never known a person of a very strong bilious, or bilious-nervous temperament, to be put into the magnetic sleep by another, of whatever temperament the operator might be.

Some temperaments, we know, are naturally susceptible; and it will be found, we think, that all those called somnambulists, or natural sleep-wakers, are quite easily affected. And so of those persons who "lose their strength," as it is so called, and sink into a state resembling catalepsy, uuder religious excitement.

We have two patients, who are far more susceptible, even in their natural and waking state, than many, or most others, in the magnetic sleep. One of them is so much affected by the mere touch of one of our fingers, that she is utterly unable to move; and if we place her hand or body in any position, she finds it impossible to change it without our consent.

The most intelligent *somnipathist* we ever saw, is a patient of Dr. Gates, of Albany. We have seen others more clear, we think, in their descriptions of a certain class of subjects; but for an intelligent perception of the anatomy of the human system, and the organs of the brain, she is certainly very remarkable.

We have one patient, who excels in her descriptions of characters whom she has never seen. She fell into the somnipathic state under an operation for the cure of cholera morbus, and immediately commenced describing our own character, and that of various other persons. She described other persons, and warned us against those she considered our enemies, and whom she thought were watching our movements from unworthy motives.

We have other patients, who have made most remarkable and accurate descriptions of persons who were sick, and whom they never saw. One of them, when asleep, remembers nothing she has ever seen or heard before, either asleep or awake, not even her own name, or the names of her family, unless her attention is specially called to them. We have patients who go to sleep and wake up instantly, on our merely directing them to do so; and there seems to be as much difference in their powers, when asleep, as there is in their physical or mental powers and temperaments, when awake.

MEDICINAL.

CASES.

We have had it in contemplation for some time, to give our views of Insanity, and what has commonly been called "nervous complaints;" but we find it impossible to give to this subject that time which its importance demands. We are not without hopes, however, that we shall be able to give our views upon it somewhat at length, in the course of our succeeding numbers.

That we have made an important discovery with regard to the real nature of insanity, and also, of (perhaps the only safe) method for its cure, we entertain no doubt at all. More than a year since, we were able to produce this state, and also to remove it without injury to the patient, and we did this often in the presence of members of the Medical Faculty of this city.

11. MADNESS.

Previous to issuing our last number we had treated a case of real madness, with decided and immediate relief. It was of a lady about 30 years of age. Some years ago, she had been confined six months with *mania*. Since then she had been for most of the time, in a state of melancholy, till just before we were called to see her. The fit in this case was brought on by a fright. Her ravings were most terrific. We relieved her in about two hours. The cure has been permanent thus far.

12. INSANITY.

Since our last, we have been called to a case of simple Insanity, of about one year's standing. The lady had contemplated suicide, and attempted it in one or two cases. The relief was almost immediate, but she was not cured, as we were with her only some twenty-four hours.

13. HYPOCHONDRIA.

Some six weeks since, we were called to see a lady about forty years of age. She had been confined to her bed some two years. It was one of the worst cases of Hypochondria, though neither her friends or physician seemed to have any idea, as to her real difficulty. With three sittings, she declared herself much better. Her living at a distance from the city, prevented any further trial.

For the Magnet.

INTERESTING PHENOMENA.

In the year 1816, west of Lake Champlain, N. Y., I saw a large man lying stretched out on the floor, and surrounded by four small boys, who performed a ceremony around him, and then by their fore fingers they wouid raise him as high as they could reach, without apparently lifting a pound.

A few years after, the Springfield (Mass.) Gazette, published an account of this phenomena, and was circulated all over the country, as far as my knowledge extended. And in Brookfield, Mass., 1768, one Miss Wicks, then said to be possessed of the devil, performed wonderful feats; she would stand on the window stool, leaning at an angle of from 22 to 30 degrees inward, without any visible support—and in this town, in or about 1805, Zinia Spear, an aunt of mine, was deranged, and was capable of many extraordinary acts. She would stand or walk on the back of the chairs all about the room without their being even moved or jarred, and would pass back and forth through the room by putting her hands on one of the under corners of a beam of the chamber, or one on which the floor rested, without any aid from the feet, they hanging down toward the floor below; and then she would take another turn and come back on it in the same manner, so crossing from

one to the other without visible inconvenience.

About the year 1818 or 19, Mahitable Bass, the wife of Moses Bass, then about 40 years old, was violently deranged several months. During a part of this period, she would go round the room on the chair railing, with her hands on the sceiling, would cross the doors without any thing to rest on at all, going several times in a minute.

In Hartland, (Vt.) a few years past, a crazy young man got a Methodist minister's watch, which he had been seeking for a long time. Having obtained it, he said, "I have said that I would not hurt it, and I wont hurt it." He then run up a maple tree near by, with the rapidity of a squirrel, to its top; and he then went out on a small limb, a number of feet, to its entire end, suspended the watch thereto, and then came down. The limb was not of sufficient strength where he went to support a common turkey, and it required a part of two day's labor of several persons to safely get it again. This fact can be supported by good testimony.

Mr. Hewes of Chelsea, Vt., informed me, that a few years ago, in Pennsylvania he and others were in a mail stage, and they drove to a store door to change the mail, and before the forward horses there was a bank wall about four feet high, but filled up on the inside to the top, so that it was level from the door step to the top of the wall, where the stage and horses stood; and while the mail was changing, a crazy girl jumped from the door on the top of the stage, and she was in the driver's seat in an instant, with the lines and the whip in her hand; she cracked the whip, and the horses, stage and all went over the wall without injury; she reined the horses and brought them to the same spot again. Mr. Hewes said he expected to be dashed to pieces, and all were alarmed, but none of them were hurt, but it seemed as if a glass bridge assisted them down the four foot fall. Mr. Hewes has been the editor of the Thursday News, Chelsea, Vt., and is of good standing.

Now, if these statements are true, some way must be devised to account for it. Can it be that there is an organ in the head which diseased or excited beyond its ordinary tone, would produce this buoyant state? If so, if the organ of tune or any other organ can be magnetised, this may be sought for in a similar way. In this way Jesus could electrify Peter to walk on the water. By this power he could cross the sea of Galilee.

E. J. Johnson, P. M. of Derby, Vermont, informed me that there was a lady there that had been in a poor state of health and required watching. She in general was sound in mind; she could tell the exact time at any period of the day or night, and she could farther tell the time of any watch in the room, put it where they would, nor could they hide one in the room out of her sight. As she recovered she lost this faculty.

In Glover, Vt., there is a Miss Stone that seems to have the power of distant sight. She pretends to do these things by a glass put in a dark place, and the light shut from her eyes; at the same time her visitants in Feb. would be 25 per day. I did not see her, but I saw several directly from there, and conversed with them freely, who informed me that she had told past and present facts correctly.

A Mr. Holden, of Barre, Vt., has a stone by which he pretends to see in a strange manner; he says that this is a power that exists in a stone, and Aaron had one in his breast plate called the urim and thummim stone—were several others in this State. In 1809, a Quaker lived in Jerico, Vt., whose fame was great in curing diseases by faith; hundreds resorted to him, and many experienced relief from him. One Miss Kidder of this town, wrote her case to him, being the asthma, from about 20 years of age, to 70. From the very hour the Quaker read her letter, she had entire relief, and was ever after free, until her death, about 10 or 12 years after.

There was a Mr. Willis, of Woodstock, Vt., who was famous in his way. He pretended to foretell events and circumstances by mathematics, and there was several others of this character in this country. Sores or maladies have been so mysteriously removed that the patients could not tell, when they disappeared. One thing is very evident, that a great part of the cases of tooth ache are cured at the sight of the doctor's instruments. I once saw a young man who had bruised his thumb so severely that he was in constant misery. Sleep had entirely departed from him, and he was walking the house in exquisite pain. At this time, a person who had heard of a charm, tried it on the sore thumb, and so instantly was the pain removed, that it required much exertion to get off his clothes and get him in bed before he fell asleep. This was done in the afternoon near night.

The Mrs. Bass before referred to, lived in Stonstead, Lower Canada. For a full report of that case see the Boston Medical and Surgical Journal, vol. 11, No. 13; also No. 19, 1834 for another report. The first was from a student of Dr. Balby; the 2nd was from Dr. Balby himself, and much more full than the first. She died about 2 years after, and he made a post-mortem examination. The most I need to say in addition to that report, is, that Mrs. Bass was a lady of high moral character, and was a member of the Methodist church for years. Scores of other similar facts could be furnished, equally astonishing. I have seen a case, that of two girls, one being able to tell the other's thoughts when apart; you can find it in Zion's Herald, printed at Boston, in 1837 or 8.—I am informed that there is a report in some of the old medical works, that two bats were in a house, and one of them was caught and his eyes wholly removed; he was not impeded by it at all, but could follow directly after the other in all its sudden turns. They then placed the other in another room leaving the blind one above; he then performed all the movements with perfect regularity. It has often astonished the hunter to see how straight the hound would come to him after burrowing a fox, or killing a deer, each having had such a promiscuous ramble in a dense forest, sometimes hours, without the least knowledge where the other was. I recollect, when a small boy, of hearing a relative who had resided in your city, about 40 years since, give an account of a mechanic there who was born without eyes, or even a place for them. According to the account, he was quite skillful, and could see to work as well as any person. If the history given of him was true, he must have been a natural somnambulist. To get the true facts, it must be from some person who was a resident of New York in 1800.

Braintree, Vt., Aug. 8, 1842. A. SPEAR.

ELECTRO-MAGNETISM.

ATTRACTION AND REPULSION.

In the first number of the Magnet we alluded to an English work, by P. Cunningham, R.N., published in 1834, "On the Motions of the Earth and Heavenly Bodies, as explained by Electro-Magnetic Attraction and Repulsion; and on the Conception, Growth, and Decay of Man, and Cause and Treatment of his Diseases, as Referable to Galvanic Action."

This work contains some valuable matter, though some

of the author's views seem to be rather crude. Indeed, we have not found it easy to tell what he means in some places; but he approaches so near to the truth on many points, and withal, the work has so much that is admitted to be true, as well as new and curious, that we have concluded to give our readers a few extracts. We are not willing to confine the Magnet merely to the propagation of our own views: it is our design to give every intelligent author an opportunity of being heard through our columns on this subject, that our readers may compare different theories, and judge for themselves as to their merits. And in this way, we shall but enhance the value of the Magnet, and increase the obligation of our readers; for this matter, it will be remembered, has never been published in this country, and of course we are giving them information which they could not very well obtain from any other source, except at quadruple the expense at which they receive this work.

Heat and electricity are so analagous in their properties, as to have made it long suspected that the one is but a modification of the other. Good conductors of electricity are good conductors of heat, while bad conductors of electricity are bad conductors of heat. Wood, when dry, is a bad conductor of both, being made a good conducter of both when wet. Heat and electricity also are more readily attracted and conducted off by pointed bodies than by those not so; this being exemplified, as regards electricity, in the lightning conductors and the pointed attractors of the electrifying machine; and, as regards heat, in the more rapid heating and cooling of bodies in proportion to points on their surface. Water and air are bad conductors, but good carriers of both, evinced, as relates to electricity, in the rapid motion of the electric clouds and winds, the elevation of sap in plants, and the overflowings of the sea, and of springs, during earthquakes.

Positive electric bodies repel each other; heated bodies do the same; both excite the sensation called heat; both are attracted by substances containing less, from substances containing more: both assist in furthering as well as in dissolving affinities, in promoting combustion, fermentation, and putrefaction, and both are capable of exciting muscular contraction in the animal body when newly dead, as well as when in life; every cook seeing the latter frequently exemplified, as regards heat, in the contortions of eels, as well as in newly killed beef and mutton, when thrown into the hot frying-pan.

There are also such strong points of coincidence between negative electricity, magnetism, and the sun's deoxidising rays, as must strike the most common observer. Negatively electrified bodies repel each other; magnetized bodies do the same; while negative electricity, magnets, and the deoxidising rays, have all a strong affinity for oxygen and its compounds the acids, reducing thereby metallic oxides to the state of pure metal, destroying vegetable colours, and separating various of the salts into their elementary constituents of acid and base.

The experiments of Morichini and Mrs. Somerville tend strongly to confirm the conclusion I have endeavoured to draw relative to the above identities, by finding that the sun's most refrangible beams, (in which the deoxidising rays are most intense,) conferred a magnetic property on bodies exposed to them fitted for receiving such an impression. The attractions, repulsions, and refrangibilities of positive electricity and of negative electricity, are in fact so directly the reverse of each other, as to clearly point them out to be two distinct substances.

Positive electricity has a strong attraction for inflammable bodies, and thereby *promotes* combustion and the oxidation of metals; negative electricity has a strong affinity for oxygen, and thereby counteracts combustion and the oxidation of metals; they take opposite directions to each other in the galvanic trough, as well as in the electrifying machine having a negative wire, and when at the repulsive distance in the atomic state, as rays of heat and deoxidising rays, show *opposite* refrangibilities when a sun-beam is exposed to the influence of the glass prism.

The difference between the sun's heating rays and positive electricity, and between the sun's deoxidising rays and negative electricity or magnetism, can be readily explained by a reference to the attractions and repulsions of these bodies when forming *mass*. Positive electricity streaming in *mass* through the air in shape of lightning, being found in *mass* in the electrive jar, in the galvanic trough, and in (what are called) positively electrified bodies, distinctly proves that at near or *invisible* distances its atoms *attract* each other; while again the *visible* repulsion of positively electrified bodies, and of the southern poles of magnets for each other, as clearly proves that at more remote or *visible* distances, the atoms of positive electricity *repel* each other; for the attractions and repulsions of the *mass* must equally apply to the minutest atom thereof.

Negative electricity or magnetism exhibits similar results, its existence in mass showing an attraction of its atoms for each other at near or *invisible* distances; and the *visible* repulsion of negatively electrified or magnetised bodies for each other equally showing that its atoms at more remote or *visible* distances must *repel* each other. When the positive electric atoms, therefore, are at *invisible* distances, they *attract* each other, and form mass positive electricity, and when at *visible* distances, they repel each other and form what is called sensible heat; while in the same way, when the atoms of negative electricity are at *invisible* distances, they *attract* each other and form mass negative electricity or magnetism; and when at *visible* distances, they *repel* each other and form what are called deoxidising rays.

When the atoms of either, therefore, are at the repulsive distance, they will naturally fly off in all directions from each other, according as influenced by surrounding bodies, having an attraction for them; and being brought *gradually* in contact with these bodies by the diffusion of their atoms, their action upon them will be gradual also, and consequently mild, while the action of their mass will be sudden and consequently violent, by reason of both the suddenness and intensity of the application. It is only, therefore, by a forcing of these atoms at the repulsive distance into the attractive distance that a union of them, constituting mass, can be effected. The mere velocity of their motion in a state of radiation may accomplish this, by causing them to mingle with the mass-electro-magnetism of the various bodies throughout the universe when coming in collision therewith; or it may be produced by natural or artificial condensation, the former being first effected by Sir James Hall through the medium of the air-condensing syringe; while to the latter seems attributable the aurora borealis at the poles, in consequence of the sudden solidification of the oceans of water there. The attraction of electric atoms for each other, or of magnetic atoms for each other, seems, however, but weak in comparison to the attraction of the electric atoms for magnetic atoms, as evinced by the rapid diminution in the cohesion of bodies, by the application of either intense heat or intense cold.

When the atoms of positive electricity are united together in mass, I will call this mass electricity; and when at the repulsive state with each other, (constituting heat,) atomo electricity; while deeming negative electricity, magnetism, and the deoxidising rays, the same body, I will call this mass-magnetism, when the atoms are united in mass, and atomo-magnetism when disunited or at the repulsive distance in shape of deoxidising rays.

Electricity and magnetism, however, follow reverse laws with regard to each other to what they do with their own individual atoms. Positively electric atoms, and negatively electric or magnetic atoms *attract* each other at *visible* distances, and repel each other at *invisible;* the former being exemplified in the visible attraction of positively and negatively electrified bodies for each other, and the latter in the opposite routes which the above atoms take in the galvanic trough, in their dissevering of chemical affinities, and in their diverse refrangibilities by the prism. There must be a point, however, between the attractive and repulsive forces, where the power of both being equally balanced, a body placed there will remain quiescent from being neither attracted or repelled; this point I will call the neutral line, from the opposing forces neutralising each other there.

It was predicted by Sir Humphrey Davy that the attraction and repulsion of bodies might hereafter be found referable to electric influence; and this we can readily conceive by simply applying the laws of electricity and magnetism in mass to the atoms thereof in chemical union with atoms of other matter. An electric atom combined with an atom of other matter will naturally attract a magnetic atom so combined, and by an accumulation of such a compound mass of matter will thus be formed either solid, fluid, or gaseous, according to the amount of electro-magnetic atoms in its composition. The electric and magnetic atoms will in fact approximate only to the neutral line, allowing thus always a degree of compressibility, elasticity, or mobility to exist in the compound bodies which they form, without the possibility of their atoms ever coming into actual contact on account of repulsion commencing between them when the neutral line is passed.

Electricity and magnetism thus appear in four different states. 1st, with the atoms united in *near* attraction forming mass-electricity and mass-magnetism. 2ndly. With the atoms at distant repulsion forming atomo-electricity or sensible heat, and atomo-magnetism or deoxidising rays. 3dly, With the atoms quiescent in the neutral line with each other; and, 4thly, With the atoms chemically uniting atoms of other bodies to each other, in the latent or insensible state; for as a compound body retains few or none of the primitive properties of its constituency so electricity and magnetism, when thus chemically united, must be less capable of exciting the actions and sensations produced by them when in a state of freedom. I may even add a fifth state, that is, their existence in mass in various bodies, which seems but a slighter species of chemical union, and in which state they can be expelled from these bodies by pressure, or extracted by other bodies having a strong affinity for them.

ELECTRIC MACHINE.

Here the electricity is seemingly evolved by pressure from the cushion; the mass electricity of the earth ascending by the connecting chain on each temporary removal of pressure, to supply the place of that evolved from the cushion; the electricity so evolved being carried round in an insulated state between the glass cylinder and the silk covering (both non-conductors) until attracted by the iron points of the conductors into the insulating jar. This filling of the jar with electricity seems in fact a similar process to that of filling a receiver with condensed air by means of the forcing pump: the escape of electricity during its progress to the jar being as effectually prevented by the non-conductors it passes between, as the escape of the air is prevented by means of the pump valve.

GALVANISM.

Here the electro-mgnetism arising from the chemical decomposition of the plates, is evolved, I conceive, principally from that existing in *mass* therein; for their atoms chemically united with the plates would be naturally required in the formation of the oxide, or other compound, generated during the change of state in the metal. On the electricity and magnetism thus evolved, two opposite forces would be acting, viz. the attraction of the strongly combustible bodies, sulphur or hydrogen, for the electricity, and that of the least combustible or oxidisable metal for the magnetism. The electric and magnetic fluids set free, being thus directed in opposite currents toward their respective wires, eventually come in contact with the substances submitted for decomposition; when the electricity attracting the combustible base, and the magnetism the oxygen or its compounds the acids (according to the nature of the article) force the respective constituents asunder by the divellent force of their contrary moving currents, and carry them along in the neutral line toward the opposite wires. The cause of the negative metal not being oxidated during galvanic operations, seems assignable to the quantity of magnetism passing through it, which, having a stronger attraction than the metal for oxygen, consequently prevents the oxygen from acting on the metal.

COMBUSTION AND GUNPOWDER EXPLOSION.

Here the heat evolved and expansion produced may be accounted for by the sudden converson of the mass-electro-magnetism of the bodies decomposed into atomo-electro-magnetism. The heat evolved by percussion, or friction in air, or in vacuo, is explainable by the alternate condensations and expansions of the substances acted on; mass-electricity being forced out therefrom during each temporary condensation, and an equal quantity attracted from the other substances in contact, to supply the deficiency on the compressed substances again re-expanding.

The theory of a neutral line at an *invisible* distance between electric and magnetic atoms, seems fully borne out, by the discovery of a similar line at a *visible* distance between masses of such matter in cannon-balls, by Professor Barlow, which he designates "the line of no attraction," from the needle being neither attracted nor repelled in this line. The breadth of the neutral line, and distance at which *near* repulsion commences between electricity and magnetism naturally increasing with the increase of the mass, furnish a sensible and natural key to the motions of all the heavenly bodies, while at the same time demonstrating the intimate union of the minutiæ of chemistry with the grander demonstrations of astronomical science, the line at which *near* repulsion commences between small masses of electric and magnetic matter being *invisible*, while between large masses of the same, as for example, between the earth and the sun, it is extended upwards of *ninety* millions of miles.

MOTION OF THE EARTH.

If we place a bar of steel upon its end, or its side,

in the northern hemisphere, we invariably find that magnetism occupies the *lower*, and electricity the *upper*. By reference to the attractions and repulsions of electricity and magnetism, (previously stated) it will therefore be evident from this demonstration of hemispheric attraction and repulsion, that while a zone of mass-electricity envelopes the northern hemisphere, a similar zone of mass-magnetism envelopes the southern, regulating thus the electric and magnetic attractions and repulsions of bodies in these two hemispheres. Seeing that atomo-electricity and atomo-magnetism are radiated from the sun, we may conclude, that they exist there also in mass, and, by analogy with the earth, that the mass of each envelopes opposite hemispheres. The axes of the earth and sun being however on an average, nearly parellel with each other, it is evident that if their electric hemispheres were opposed on the one hand, and their magnetic hemispheres on the other, the earth would rebound from the sun, on account of the opposing hemispheres *repelling* each other;—the sun's northern hemisphere therefore must be the magnetic, and his southern the electric, by which the opposing hemispheres of the earth will be *attracted;* and the earth consequently made to move round him in the neutral line. On her primarily approaching him, rotating upon her axis, her motion would be naturally unsteady; and supposing her southern hemisphere to be thereby more inclined to him than her northern hemisphere, the former from thus coming sooner into repulsion with him than the latter, would consequently gradually be canted outwards, which canting would turn her round in her course, in the same way that a carriage wheel is turned by a similar canting. Proceeding however still towards the sun, in consequence of her momentum of motion being as yet greater than the resistance opposed by his repulsion, she would finally arrive at the nearest point to which she could approach him, and be now repelled outwards from him as rapidly as she had previously been attracted. The southern hemisphere, however, from having a greater momentum given it, by reason of coming into repulsion with him before the northern, would consequently be made to come first in attraction with him also; through which this would be gradually canted toward him again, thereby turning her round afresh in her orbit, to pursue her former track.

To these alternate inclinations of the earth's hemispheres towards the sun, by the alternate canting outwards and inwards of her southern pole, we owe that charming variety in the year constituting the seasons, exhibiting to us a constantly-varying panorama of all that is delightful, mournful, or terrible in nature—the vibrations of her poles measuring out the march of the seasons with as beautiful a nicety as the vibrations of the pendulum measure out the march of time.

But each continued impulse thus given by the sun to the south pole of the earth in axillary rotation will naturally keep up the latter, and by impelling her onwards at the same time, thereby whirl her round the sun in the area of her neutral line, in the same way as a carriage wheel is whirled round the area of a bowling-green. The earth approximating 2,754,000 miles nearer the sun during December, when her distance from him is least, than during the opposite month of June, when her distance from him is greatest, this space therefore marks the breadth of the path she is capable of moving in during her annual circuit.

In her course to and from the sun, she will, (as I have before stated) in consequence of the impulse of motion previously given her, naturally proceed some distance into the repulsive and attractive spheres, before the counteracting powers of these spheres are enabled to check her onward motion and turn her round in the opposite direction. A retardation, therefore, of her onward motion from the above causes will take place between the autumnal equinox, and winter solstice, when she is proceeding into the repulsive sphere, and between the vernal equinox and summer solstice, when she is proceeding into the attractive sphere; while the above onward motion will, on the contrary, be accelerated between the winter solstice and vernal equinox, and between the summer solstice and autumnal equinox, from no counteracting causes then impeding her onward course.

During the periods, however, when her onward motion is retarded, her axillary motion will be naturally accelerated from her coming in oblique contact with the retarding power while in onward motion, in the same way as the rotation of a cannon ball would be naturally accelerated by striking obliquely against a substance when in onward motion, though the latter motion would be necessrily retarded thereby. That the accelerations and retardations of the above motions should continue uniform through the *whole* of their respective quarters is a circumstance rendered impossible by the natural laws of motion; the causes above alluded to naturally producing the above effects during a portion only of the said quarters. The moon and various planets will necessarily also influence the earth's motion by their respective attractions and repulsions.

THE MOON.

As the moon moves round the earth, her hemispheres, in order to vibrate with the latter, must correspond with those of the sun, and be consequently *repulsed* by them. This solar repulsion, therefore, will naturally cause the moon to approximate nearer the earth than she otherwise would have done, when she passes between the latter and the sun, and to recede farther from the earth when the latter intervenes between. It will also tend to shorten the moon's angular vibrations, to quicken her motion when receding from, and retard it when advancing toward the sun, as well as to make her orbit more circular; and as she will be naturally propelled by the sun alternately toward the north and south poles of the earth, according as each of these in their season form the greatest angle with him, so this alternate change in her position will tend to produce warmer summers in these more polar regions than they otherwise would have experienced, had no moon revolved round the earth, by her attractions and repulsions causing the pole of the earth farthest from the sun to face still farther outwards from him, and consequently to cause the pole nearest to him to face still farther inwards, by which a fuller solar exposure, and thereby a greater summer heat, will necessarily be attained by these polar regions.

This solar propulsion of the moon alternately toward each of the earth's poles will conduce also to extend the moon's ifluence over a greater portion of the earth's hemispheres, than she could otherwise have embraced, had her circle of motion been confined strictly to the circle of the earth's equator, admitting thus the electro-magnetic zones, the atmospheric vapours, and the ocean involving the earth, to be all influenced to a greater extent by her. As the vibrations of the sun with the earth are between their south poles, it is probable from this that the vibrations of the moon with the earth are principally between their north poles, vibrations, that may in fact have occasioned those now existing, between the south poles of the earth and the sun, either from the moon accompanying the earth in vibration with

the latter's north pole, (on the earth first approximating the sun) or from her approximating the earth after the latter had commenced her revolutions, and by sudden attraction with the earth's north pole, changing the vibrations of the sun and earth from their north to their south poles, had such a vibration as the former existed.

THE SUN.

The luminous aspect of the sun as well as the heat radiated from his surface may as likely be produced by the influence of his electro-magnetic zone, as by combustion; the luminous aspect greatly resembling the deception called mirage, and probably ascribable to a similar cause; while the electro-magnetic particles would be readily attracted by, as well as repelled from, his electro-magnetic zone: according as their poles were situated with respect to his hemispheres. If, for instance, an electro-magnetic particle had its electric pole facing the sun, it would be attracted by the latter's magnetic hemisphere and repelled by his electric, and *vice versa* if the particle's magnetic pole faced the sun. If, however, the poles of the particle were placed parallel to the poles of the sun, it would be attracted by both the sun's hemispheres, and thus be moved toward his equator to mingle with the electro-magnetic matter there.

As the poles of the electro-magnetic particles would be liable to be reversed by the attraction and repulsion of other passing particles, so by this frequent polar reversion of particles at the sun's surface, as well as through every portion of the heavens, a constant radiation of atomo-electro-magnetism to and from the sun would be kept up, the particle just attracted by him being liable the next moment, by a change of its poles, to be repelled from him, and to be attracted back again on another polar reversion taking place.

As the sun's rays always excite the sensation of heat, and never that of cold, it may consequently be inferred that electric atoms preponderate over magnetic atoms in his rays, by which it might be inferred also that, provided the preceding theory be correct, the electro-magnetic particles would be attracted solely by his magnetic hemisphere, and repelled solely by his electric. That the electro-magnetic particles may be attracted by and repelled from the sun, in the ways previously stated, is sufficiently illustrated on a good scale (as I shall afterwards show) by the motions of comets,—bodies similarly constituted of electro-magnetism, which are attracted to the sun by one hemisphere and repelled from him by the other, on their passing from the first into the latter.

That the sun should be the only body within the heavenly hemisphere capable of giving out heat may be readily accounted for, by his attractive power being so much greater than that of any of the others, as evinced in the comets passing all of them, to proceed to him, while his geater propulsive power is similarly exemplified in his giving such a rapidity of motion to the electro-magnetic particles repelled from him, as well as to the masses thereof forming comets, as to neutralise in a great measure the attractions of all the planets they do not pass toward in a direct line; only yielding to the planetary attractions when their motion is greatly retarded by their distance from the sun, or when moving as above toward them in a direct, or at least, nearly direct line.

As we naturally conclude, however, that the solar rays contain electricity in excess, from their always exciting the sensation called heat, how is it that the northern or electric hemisphere of the earth, which repulses electric matter, should be as warm as the southern or magnetic hemisphere, which attracts it? Can this be owing to the electro-magnetic particles propelled from the sun overcoming, by the velocity of their motion, the resistance opposed by the electric hemisphere, or to a magnetic atom being unsufficient to neutralise the influence of an electic atom, as far at least as the sensation called heat is concerned? This sensation may indeed be only a feeling produced by electric particles in *motion*, which they are incapable of producing when at *rest*, by reason of the similar motion they will naturally excite among the particles of the matter which they come in contact with. Electricity or heat, producing expansion, and magnetism or cold, contraction, these two opposite actions among the particles may, therefore, excite the opposite sensations which they produce.

Judging, however, by the appearances which the earth now presents, of her having been formerly in a state of combustion, we may infer that the sun has at least formerly been in a similar state; and as many portions of the earth are at the present day in combustion, we may also infer that many portions of the sun are still in a similar state also, his greater bulk not only affording more combustible food, but requiring an infinitely longer period to cool in.

In the event of the continuity of either the electric or magnetic zones of the sun being partially destroyed by any volcanic or other violent eruption, the breaches so made would no longer attract the electro-magnetic particles, and consequently would appear of a dark hue; and this may probably be the explanation of the dark spots frequently visible on the sun's surface.

This view seems corroborated by these spots becoming more angular toward the south, when the earth is in attraction with the sun's southern hemisphere, and more arched again in the same place in repulsion, the earth's attraction naturally drawing the sides of the points toward a point in the line of the greatest attraction, and the repulsion forcing them out asunder again. Calculating by the period of 3 hours, required by the moon to raise a tide upon the earth, then the earth, according to her greater comparative distance from the sun, ought to produce her greatest effect upon the solar spots in forty-nine days after the solstices, whereas she does not do so until about seventy days after the solstices. As spring tides, however, do not take place until twenty-seven hours after the sun and moon have been in opposition or conjunction with each other, I am consequently inclined to think that the impulse of the moon's attraction or repulsion requires twenty-seven hours at least to maifest itself upon the earth, which by comparison of distance, would give the earth one year and seventy days after each solstice to manifest her greatest influence upon the solar spots, making this therefore take place about the 1st of March and the 1st of April in each year, the identical time that observations have ascertained it to happen. This would tend to show that attraction and repulsion are not instantaneous, but progressive, while corresponding in *uniformity* to the motion of the heavenly bodies, describing equal spaces in equal times, at the rate of about 147 miles a minute.

Can the effects of attraction and repulsion be ascribable to a power inherent in a body which it can exert upon another body at a distance, or to a substance in motion exerting an effect by actual contact? If the latter be the power, atomo-electro-magnetism seems the most probable substance causing the before mentioned effects. But the immense known rapidity of motion of the atomo-electro-magnetism radiated from the sun does not correspond with the slow motion of the influence producing

the changes in the solar spots and the tides, though they both agree in the comparative tardiness of their effects; for if the earth does not produce her greatest effects upon the solar spots until seventy days after each solstice, it is just about the same period that the sun produces his greatest heat and greatest cold upon the reverse hemispheres of the earth, after having emitted it intensely to the one turned toward him, and extracted it intensely from the one turned from him. As the mass electro-magnetism of the sun's zones must have, however, a westerly motion given to it by the revolving planets, the solar spots must consequently partake of this motion, seeing, by their frequent disappearances and re-appearances, that they are but temporary breaches therein; so that the actual period of the sun's rotation will necessarily be greater than that ascribed to it, through observations upon the period of the spots' rotation.

The rotation of the various planets round the sun will naturally turn him upon his axis, while their hemispheric attractions and repulsions will excite also angular vibration in his poles, conferring thus a similar variety of days and of seasons upon him that he confers upon them.

MISCELLANEOUS.

From the Washington Banner.

MAGNETISM.

Less than two months ago, we regarded this science as among the tallest and most impudent of the great family of humbugs. Our belief was not only thorough, but it was intolerant; and we could not hear the subject mentioned, without feeling strong disgust, somewhat mingled with contempt, for those who were so weak as to be deluded with extravagant pretensions. But we freely confess that a change has come over the spirit of our dream. We are no longer an intolerant unbeliever. Demonstration so absolutely overwhelming has accumulated upon us, that we are compelled to believe. Some will smile contemptuously—some will shrug their shoulders expressively—and others still will rejoice in their own superior sagacity, and marvel greatly how one possessing the least particle of common sense could be so singularly deluded—when we avow unhesitatingly our firm conviction of the truth of Living Magnetism. Call it by what name you please it is a great Truth, and as such, we predict, will be generally acknowledged by the intelligent men of our country before the lapse of ten, perhaps we should say five, years. Its claims to be regarded as a science will be vindicated—and unless we greatly err in our conceptions of its nature and its influences, its more perfect developement will confer inestimable blessings upon man. Notwithstanding the ridicule which is poured unsparingly upon the subject, and the profound contempt with which it is treated by many of the Solomons of our land, we are content that our opinions upon the matter should be placed on record, and we leave it to time to decide who exhibits the greatest folly, ourself in admitting, or our wise men in denying, the truth of Magnetism.

Our attention was first called to the subject several years ago—but, hastily prejudging the matter as an impudent imposture, whose apparent marvels can be readily solved upon the supposition of collusion, we dismissed the matter from our mind, and if ever after we alluded to it, it was only to sneer at its pretensions and to deride its votaries. The recent visit of Mr. Johnson to our sister city, and his experiments at Concert Hall, again called our attention to the subject. It was with difficulty, however, that we could obtain the consent of our own mind to attend his exhibitions. Finally, we went. Notwihstanding the failure of many of his experiments, we satisfied ourself by repeated scrutiny of the reality of the magnetic sleep. We witnessed phenomena which could not be explained upon the supposition of collusion, and in the face of all our prejudices and convictions, we came to the conclusion that "there is something in Animal Magnetism." Our investigations, however, did not rest here. We had seen enough to excite a spirit of enquiry, and we eagerly availed ourself of every facility in our reach to pry into the philosophy of the pretended science. Happily, several numbers of the New York Watchman were thrown into our hands, containing a series of articles upon "Mental Phenomena," which gave us a clearer insight into the mysteries of Mesmerism than we had ever obtained. Subsequently, we obtained from an intelligent friend the loan of "Facts in Mesmerism"—a book of some three hundred pages, by the Rev. C. H. Townshend,—one of the most profoundly philosophical works we ever read, evidently the production of a thoughtful and studious man. From these sources, we obtained a great amount of interesting and useful information. The result of our reflection and reading upon the subject was, that the magnetic power is possessed in common by all men—that it is not a peculiar gift to a favoured few, but that at least every adult, of sound body and mind, possesses the magnetic influence in kind, differing only in degree. If this conviction were founded in truth, we could see no good reason why we might not ourself exert the magnetic influence as well as Mr. Johnson or any other travelling experimenter. We are of sound body, possessing considerable force of will, and having at least some powers of concentration—the very things requisite to constitute a succesful magnetizer. To conceive and to execute are nearly synonymous terms with us. We immediately tried the experiment. The subject was a child of our own—a girl of nearly six years—of a nervous-bilious temperament, full of animal spirits, and characterized by great but rather eccentric activity of mind. Placing her before us, we went through the usual manipulating process, and in five minutes threw her into the mesmeric sleep—a condition which may be properly characterized as a sleep-waking state, distinct from either waking or sleeping, but exhibiting certain phenomena of both condition. The result of this experiment satisfied us of the truth of magnetism, so far as we went, for at that time we tried no experiment in sympathy. Of course, we did not conclude our investigations with this single case. We chose other subjects, generally adults, both men and women—people whose standing in society precludes the idea of their colluding with us—and our experiments thus far have been most successful, carrying conviction to the minds of most if not all those who have witnessed our performances. Some of these experiments we propose to relate in a subsequent number of our paper—and there are a few at least, who know us, who will readily believe that in this matter we could not easily be deceived, and that we would not upon any consideration deliberately attempt to deceive others. We have some most striking phenomena to communicate, which will fill the uninitiated with wonder, and probably prove a severe tax upon their credulity—but all we ask is a patient hearing and an intelligent judgment. The facts we have to communicate not only prove the reality of Animal Magnetism, but in our apprehension furnish the most triumphant demonstration of the truth of Phrenology that the world ever saw. Scientfic men, and all who are curious to investigate

mental, moral, and physical phenomena, will do well to give earnest heed to the facts which we shall from time to time communicate. Startling as they may seem, they are susceptible of the most ample demonstration.

ANECDOTE OF A SLEEP WALKER.

During the revolutionary war, there was a gentleman of large property residing in Brooklyn, who was addicted to the habit of walking in his sleep;—panic-struck at the invasion of the enemy, he daily expected that his dwelling would be ransacked and pillaged. Under the influence of these fears, he rose one night, and taking a strong box, which, awake, he never attempted to lift without assistance, he proceeded down stairs, furnished himself with a lantern and spade, and in a deep wooden glen, about a quarter of a mile from his house, he buried his treasure, carefully replacing the sods, so as to create no suspicion of their having been removed. This done, he returned, undressed, and went to bed. Next morning he was the first to discover the absence of the "strong box," without having the slightest remembrance of what had passed. Enraged at its loss, he immediately accused his domestic of the robbery, as no traces of violence were perceptible either on the locks or doors of his house, that could induce him to suspect strangers. Month after month elapsed, and still the mystery was not solved, and his family began to want the necessaries of life without having the means of procuring them. At that period of public calamity, no money could be raised on real estate, and it was at that season of the year when agricultural labors had ceased, which left him no means of earning a support for his family. To augment his misery, his only son lay confined by a violent fever, without any one of those comforts which his situation demanded. The despairing father was strongly affected by this melancholy view of the future; his rest became more frequently broken, and he would often wander from room to room all night, with hurried and unequal steps, as if pursued by an enemy. His wife and daughter, who were accustomed to these nightly wanderings, never attempted to disturb him, unless they were fearful some accident might befall him; in this case it was necessary to employ the most violent means to awaken him, upon which he would exhibit so much fear and distress, that they usually suffered him to recover from the trance, which was succeeded by drowsiness, after which he would sink into light and natural sleep, which generally continued for several hours.

One night, as his daughter was watching at the couch of her sick brother, she heard her father descend the stairs with a quick step, and immediately followed him; she perceived he had dressed himself, and was lighting a lantern at the hearth, after which he unbolted the door and looked out; he then returned to the kitchen, and taking the lantern and spade, left the house. Alarmed at the circumstance, which was not usual—though it sometimes occurred, as above related, without the knowledge of his family—she hastily threw on a cloak and followed him to the wood, trembling with apprehension of she knew not what, both for herself and her father.

Having gained the place where he had three months since buried the box, he set down the lantern, so as to reflect strongly upon the spot; he then removed the sods, and striking the spade against its iron cover, he laughed wildly, and exclaimed—"My treasure is safe, and we shall be happy." And shouldering his heavy burden with the strength of a Hercules, he stopped not as before to replace the sods of the earth, but snatching up his lantern, pursued his way directly home, to the joy of his daughter, who could scarcely support herself from the fears she had experienced, which were that he was about to dig his own grave, and either commit suicide, or murder some of his defenceless family. Inexpressible, therefore, was her joy on seeing him ascend the stairs, and place the box in its former recess; after which, as usual, he retired to rest. His wife and daughter, however, were too anxious to sleep themselves—the one sat impatiently watching the dawn of the day, and the other returned to the apartment of her suffering brother, to relieve his mind by the joyful event, and her consequent hope of his immediate recovery

When the gentleman arose in the morning, his wife observed the gloom upon his countenance, as he anxiously inquired about the health of his son, and expressed his sorrow at not being able to procure those comforts for his family which were so much needed. Finding him perfectly unconscious of all that had passed the preceding night, she watched the effect which the restoration of the box would have upon his mind; and as she expected, with an astonishment almost amounting to frenzy, he exclaimed—"Who has done this? whence came the box?" Not until he had listened to the evidence of his daughter, could he be convinced of the possibility of his performing such an act while asleep.—Suffice it to say, that now health, peace and competence were once more restored to his dwelling, and the result of this blessing had a salutary effect upon his mind; and although he still continued his midnight excursions, yet his friends were gratified to find them less frequent than formerly, and his future dreams also, to judge by appearances, seemed to partake of the mild, serene character of his waking thoughts.

MECHANICAL SKILL OF THE ANCIENTS.

If we admire the ancients in those monuments which remain to us of the greatness of their undertakings, we shall have no less reason for wonder in contemplating the dexterity and skill of their artists in works of quite a different kind. Their works in miniature are well deserving of notice. Archytas who was cotemporary with Plato, is famous in antiquity for the artful structure of his wooden pigeon, which imitated the flight and motions of a living one. Cicero, according to Pliny's report, saw the whole Iliad of Homer written in so fine a character, that it could be contained in a nut-shell. And Elian speaks of one Myrmesides, a Milesian, and of Callicrates, a Lacedemonian;—the first of whom made an ivory chariot, so small and so delicately framed, that a fly with its wing could cover it; and a little ivory ship of the same dimensions: the second formed ants and other little animals out of ivory, which were so extremely small, that their component parts were scarcely to be distinguished. He says also in the same place, that one of those artists wrote a distich in golden letters, which he enclosed in the rind of a grain of corn.

It is natural here to inquire, whether in such undertakings as our best artists cannot accomplish, without the assistance of microscopes, the ancients had not any such aid; and the result of this research will be, that they had several ways of helping the sight, of strengthening it, and of magnifying small objects. Jamblichus says of Pythagoras, that he applied himself to find out instruments as efficacious to aid the hearing as a rule, or square, or even optic glasses, were to the sight. Plutarch speaks of mathemetical instruments, which Archimedes made use of, to manifest to the eye the largeness of the sun; which may be meant of telescopes. Aulus Gellius,

having spoken of mirrors, that multiplied objects, makes mention of those which inverted them; and those of course must be concave or convex glasses.—Pliny says, that in his time artists made use of emeralds to assist their sight, in works that required a nice eye; and, to prevent us from thinking that it was on account of its green colour only that they had recourse to it, he adds, that they were made concave, the better to collect the visual rays; and that Nero made use of them in viewing the combats of the gladiators. In short, Seneca is very full and clear upon this head, when he says, that the smallest characters in writing, even such as almost entirely escape the naked eye, may easily be brought to view, by means of a little glass ball filled with water, which had all the effect of a microscope in rendering them large and clear: and indeed this was the very sort of microscope that Mr. Gray made use of in his observations. To all this add the burning-glasses made mention of before, which were in reality magnifying glasses: nor could this property of them remain unobserved.

It would be a needless task to undertake to show, that the ancients have pre-eminence over the moderns in architecture, engraving, sculpture, medicine, poetry, eloquence, and history. The moderns themselvs will not contest this with them: on the contrary, the height of their ambition is, to imitate them in those branches of science. And indeed what poets have we to produce, fit to be compared with Homer, Horace, and Virgil; what orators equal to Demosthenes and Cicero; what historians to match Thucidides, Xenophon, Tacitus, and Titus Livius; what physicians, such as Hippocrates and Galen; what sculptors like Phidias, Polycletus, and Praxiteles; what architects to rear edifices similar to those, whose very ruins are still the object of our admiration? Till we have those, whom we can place in competition with the ancients in these respects, it will become our modesty to yield to them the superiority.

'Tis worth notice, that the merit of the ancients is generally most controverted by those, who are least acquainted with them. There are very few of those who rail at antiquity qualified to relish the original beauties of the Iliad, Æneid, and other immortal performances of the authors just enumerated. There are fewer still, who are capable at one view to take in all that variety of science, which hath been laid before the reader, and which comprehends in it almost the whole circle of our knowledge. Of the remaining admirable monuments, which show to what perfection the ancients carried the arts of sculpture and design, how few have taken any due notice; and of those, how very few have been able to judge of their real value? True it is, that time and the hands of barbarians have destroyed the better parts of them; yet still enough is left to prove the excellence of what hath perished, and to justify encomiums bestowed on them by historians. The group of figures in the Niobe of Praxiteles, and the famous statue of Laocoon, still to be seen at Rome, are, and ever will be models of beauty and truth sublime in sculpture, where much more is to be admired, than comes within the comprehension of the eye. The Venus de Medicis, the Hercules stifling Antacus, the other Hercules who rests upon his club, the dying gladiator, and that other in the vineyard of Borghese, the Apollo of the Belvidere, the maimed Hercules of the same place and the Equerry in the action of breaking a horse on mount Quirinal, are all of them monuments, which loudly proclaim the just pretensions of the ancients to a superiority in these arts. These pretensions are still further supported by their remaining medals, the precious stones of their engraving, and their cameos. There is still to be seen a silver medal of Alexander the Great, on the reverse of which there is Jupiter sitting on his throne, finished with the finest strokes of art; not a feature, even the smallest, but seems to declare his divinity. The stones engraved by Pyrgoteles, who had an exclusive privilege of engraving Alexander's head, as Lysippus had of making his statue, and Apelles of painting him; those of Dioscorides, who engraved the heads of the seals of Augustus; the celebrate Medusa, Diomedes, Cupid, and other performances of Solon; in short, all the other eminent pieces of sculpture and engraving, so carefully sought after by the curious, and with so much reason admired by connoisseurs, render it needless for me to enlarge on the praise of artists sufficiently renowned by being the authors of works so lasting and so precious.—*John Wesley.*

SPONTANEOUS COMBUSTION OF THE BODY.

BY DR. JACOBS, OF EUPEN.

From twenty-eight cases of spontaneous combustion collected by the author, he concludes--

1. That spontaneous combustion always occurs in living human beings, never after death, nor in the lower animals; 2. The subjects were generally very old, the two youngest being fifty and twenty-nine years of age; 3. Women are more frequently the subjects, it having only occurred in two men; 4. It was once preceded by jaundice, once by a malignant ulcer on the head; 5. All the persons were alone at the time of the occurrence; 6. They led an idle life; 7. All were very fat, except three very lean females; 8. Almost all were very intemperate; 9. Most frequently a light, or some ignited substance, was near at the time of the accident; 10. The combustion proceeds very rapidly, and finishes, in seven, three, and two hours, and even one hour; 11. The flame, difficult to be extinguished by water, was very mobile, only destrying the objects placed very near, or in immediate contact with the burning body; 12. The room in which the combustion took place was usually filled with vapour, and the wall covered by a black carbonaceous substance; the floor, ashes, and bones, imbued with a fat and fœtid moisture; 13. The trunk was most frequently completely destroyed, some parts of the head and extremities usually remaining. 14 This combustion has occurred, with only two exceptions, during a cold temperature in winter, and in the northern regions.

The True Principle of Stoves.—In order to produce the greatest quantity of heat, in proportion to the quantity of fuel consumed, a stove should present a large quantity of vertical surface to the surrounding air, and that surface should be smooth, for the purpose of facilitating the ascent of a current of rarified air. If any projection impedes this current, the heat accumulates and remains comparatively stationary, and thus prevents the free radiation of heat from within; but when there is a brisk circulation of air outside, the heat as it passes through the iron surface, is instantly carried off, and is circulated in the room: thus allowing the free radiation of more. Every stove for heating, should be made at least six feet high; but if not, the smoke and hot air should be conducted upwards six or more feet, and again brought down within three feet of the floor, before passing off to the chimney. Atmospheric air should always be excluded from the interior of a stove, except so much as is requisite to produce the required quantity of heat,; by admitting too much air a rapid current is produced within, and the emanating heat is drven into the chimney before it has time to

radiate through the iron plate; and in most of the stoves now in use, more than two thirds of the heat, which might otherwise be useful, is totally lost.

VEGETABLE PHENOMENON.

We have lately witnessed a most singular act, having the greatest interest in vegetable physiology. In the garden of John Radford, Esq. of Winchmore Hill, near London, there stands a bay tree, which appeared to be killed by the frost of last winter, and the whole of whose leaves became brown and apparently dead. Of the latter, many fell off as Spring advanced, and the branches gradually acquired new leaves. In this there was nothing at all remarkable; but the singular fact is, that the leaves—hard, brown, dry, and to all appearance dead—have gradually recovered their green color, and are in some cases completely restored to life! The green color makes its appearance at the base of the leaf in the first instance, and spreads upwards, along, and right and left of, the mid rib. There can be no mistake about this circumstance, for so very strange a phenomenon naturally attracted attention; and we learn from Mr. Radford, that he has distinguished the dead looking leaves with notches and other marks, in order to be quite sure that it is they which are restored to life. A leaf now before us, marked as dead a week ago, has now the green colour spreading along it, in the manner we have described, to the lengh of rather more than an inch. That the sweet bay tree should never be cut down after it appears to be killed with frost, is well known; but that its perfectly dead leaves should be capable of reviving in this extraordinary manner, is to us an event without a parallel, in either the animal or vegetable kingdom.—*Gardener's Chronicle.*

Duty of Investigation.—There are certain leading principles in the Magnetic theory which are founded in truth, and will yet be established by facts to the satisfaction of all unbiassed intelligent minds. Those principles are not now understood; their effects are seen to some extent, but are so mixed up with superstition and obscured by empiricism, that it is difficult to discriminate between truth and falsehood, and fact and imagination. Besides, there are but few who are sufficiently acquainted with the system to practice it with success, or to educe its inherent phenomena; hence the obstructions in its way are numerous and serious, and must necessarily greatly impede its progress. As is often the case in matters of science as well as of benevolence, Magnetism has suffered much, more from the extravagance and ignorance of its friends than from the opposition and wisdom of its enemies. The great duty of men of science now is, to investigate candidly and thoroughly; to take the subject out of the hands of the unskillful and superstitious, and give it a full, fair, and unbiassed examination; to separate the truth from error, and to set before the world the real phenomena of the theory, and then endeavor to account for them upon philosophical principles, and to apply them to the useful purposes of life. How far they may be rendered practically useful, it would be presumption at this early stage of its history to undertake to decide. We must know more about it; its principles must be better understood, its powers more satisfactorily evolved, and experiments be greatly multipled before its practical utility can be properly defined.—*Luth. Observer.*

New Theory of the Weather.—We have received from the author, Mr. David Abdill, of Wheeling, Va., a new work "on the theory of the Weather and practical views on Astronomy." The work is comprised in 324 duodecimo pages, illustrated by engravings, and is well adapted to the end in view; to furnish students with a vast amount of astronomical knowledge, condensed in the smallest compass; expand their mind in contemplating the order, beauty, and arrangement of the celestial bodies, and the heart by aspirations of the good and true, in the selection of choice poetry.

The Theory of the Author, on the weather, and the sure means of prognosticating what it will be for days, months, or years to come, possesses claims to the attention of meteorologists, farmers, sailors, &c., and, in fine, of every man whose life or occupation exposes him to summer heats and rains, or the cold blasts of winter.

We bespeak for this work the candid expression of literary men and the press, for the theory here divulged, if adequate to account for the facts, and how to prognosticate the future, is well worthy the reward that should be bestowed on one who has devoted years to this vexed question. Mr. A. has, through the Wheeling papers, published tables of the weather for weeks ahead, and his data have been mostly corroborated by events.

Horticultural Phenomena.—A Baltimore paper speaks of a gentleman in that city who has a rose-bush that bears twin roses side by side, one pure white, the other deep red. This is not so remarkable as a rose-bush in the vicinity of Boston. A large and very healthy barberry bush stood in the midst of a piece of ground, which a gentleman had appropriated to a flower-garden. The gardener, unwilling to lose such a vigorous growth, and being minded to try an experiment, cut it off, not far above the root, and grafted a slip of white rose into it. It grew rapidly, and became a thriving bush; and what was very singular, though leaves and flowers remained in shape like a rose, the color changed from white to that delicate straw-color, which characterizes the barberry-blossom. The arrangement of the bush, too, changed its character; the branches, instead of shooting out straight, like a rose, assumed the drooping, curving line of the barberry.

This is the only instance we ever heard of, where the graft took its character from the stock. Those acquainted with agriculture will consider it a very remarkable phenomenon.—*National A. S. Standard.*

A Candid Opinion.—We regard the ridicule and contempt thrown upon Magnetism as not the smallest disparagement to its claims. The Christian religion would long ago have been wiped from the face of the earth, were ridicule indeed, as it has been most falsely called, the test of truth. And it is a remarkable fact, that those who have treated magnetism with the most bitter and ungrateful contempt have been just the persons who know the least about it—who have never given it a moment's investigation, and who have established their presumption and ignorance upon an equal footing, in the vain hope of acquiring a reputation for superior and enlightened wisdom. Thus in their own conceits, they denounce without a particle of acquaintance with it, a subject which has engaged the profoundest study and attention of the best informed and most scientific men in the country.

In the present condition of Magnetism, we should grieve to see any female whom we respect, descend so far from the proprieties of her sex, as to submit to experiments merely for the gratification of the evil and curious. Still we have seen too much of its efficacy in certain cases to doubt that under the hands of a skillful and trustworthy practitioner, the patient may sometimes derive the most important benefit.—*Spirit of the Times.*

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MAGNETISM.

CLAIRVOYANCE.

We give place to the following communication from our friend Carter, because we know it will gratify our readers to see his details in our columns.

But we should state, perhaps, that though we have had scores of descriptions from persons in the somnipathic state, like the following, yet we have never considered them as satisfactory demonstrations of what we understand by *Clairvoyance*; for it will be seen at once, that there is not sufficient evidence here, to prove that this boy actually saw the things which is supposed he meant to describe. There are so many chances for mistakes in these descriptions, that we never like to report them as demonstrative evidences of *Clairvoyance*, to those who know nothing of this phenomenon. Descriptions of what is in the *mind* of the operator might be evidences of Clairvoyance to him, while it would not be evidence to any other person. But these accounts, in order to satisfy others, should be made of things under the following cirumstances:

The patient should repeatedly describe accurately, what no other person present knows, or what all the persons present know; that neither the patient nor operator had any previous knowledge of, and the things described, should be examined *immediately* afterwards, by all who heard the description, that they may see and judge of its accuracy.

We suppose we have had as good Clairvoyants as any ever known; and yet we would not assume, that one out of the whole would describe, without any mistake, what neither of us knew any thing about, till the time the description was given. True, we have had such descriptions, but they have been given under circumstances which have taught us to be careful how we presume upon this power, or report accounts of its exercise, which will not bear the most rigid investigation.

To the Editor of the Magnet.

My Dear Sir:—Although I am aware that you have not, or, perhaps, I should say, after reading your last letter to me, *had* not overmuch faith in the marvels that have been related of the Clairvoyant faculty, yet I think you will not be altogether unwilling to peruse patiently, the following narrative of some very remarkable magnetic experiments, in which I was concerned, either as a spectator or an operator. I would remark, in commencing, that I do not pretend, at present, to draw any conclusions from what I have witnessed, but merely relate the facts as they occurred or appeared to me to occur, without comment or explanation.

The first remarkable specimens of the magnetic phenomena that I saw, were on the evening of March 22, 1842, at the house of one of the editors of a daily paper in this city. The mesmeriser was a French gentleman, then connected with Harvard College as a teacher of his native language. The boy, who was to be magnetised at seven o'clock, appeared to be about fourteen years of age, timid, quiet, and rather unintelligent. I had previously ascertained, satisfactorily, that the operator's acquaintance with him was only of two or three days' duration.

In a few minutes the operation commenced. He seated himself opposite the boy, and fixing his gaze steadfastly upon him, made a few passes chiefly upon his head and arms. In about twenty minutes his eye-lids closed firmly and suddenly, as if they had been struck down. The operator, after a few more passes, left the boy and conversed for a few minutes with some ladies present.

A large thick handkerchief was then tied over the eyes of the boy, so that, as I satisfied myself, by inspection, it would have been impossible for him to see anything, had he been awake. He described several articles pretty accurately, yet not with sufficient precision to convince me that he saw them.—He said he saw not with his eyes, but with that part of the forehead which is first above the eye-brows. He said that he could not see so well this evening as he would when in the magnetic sleep hereafter. On being at different intervals asked the time, he invariably told it correctly even to a minute.

It was then proposed to test his Clairvoyance by taking him to distant places. I whispered to the operator when at some distance from the boy, to take the latter to the City of Washington. He accordingly told him that he wished him to go with him to a distant city, and inquired if he were willing?

"Yes."

"Come, then, we will go—now we are on the road. Ah! here we are; is not this a fine city?"

"Yes, very fine."

"What is the name of it?"

"New York."

The operator seemed embarrassed, and whispered to me, that he had imagined himself immediately in Washington, and that he had not thought of New York. He, however, said,—"We must not stop here, let us go farther. Here is another city—how do you like it?"

"Very much. It is a large and handsome place."
"What is the name of it?"
"Philadelphia."
"We must proceed still farther. Where are we now?"
"In a very broad street."
"What is the name of this place?"
"Washington."
"Well, what do you see here?"
"A very large building built of marble."
"Let us enter. Where are we?"
"In a large round hall with pictures. It is very beautiful, I should like to live here forever."
"What do you see besides pictures?"
"A man."
"What is he doing?"
"He is not a live man; he is made of marble, and is upon one side of the hall with a railing round him."
"What is his position?"
"He is sitting, but he is as tall as a man standing up."
"How is he dressed?"
"He has a sheet wrapped about him, and he holds a sword in one hand and a paper in the other."
"Do you know who it is?"
"I do not know his name, but I know his face; I have seen it in picture books."

This was, undoubtedly, Greenough's colossal statue of Washington which had been placed in the rotunda of the capitol, but a short time before these experiments were made. The description is, I believe, correct, with the exception that the right hand of the statue which points upwards, does not hold a paper or any thing else. The boy had never been to Washington, and though it is probable he may have read something about the statue in the Boston newspapers, had he been describing from memory and not from what he saw, he would scarcely have said that the statue had a sheet wrapped around it. The papers which mentioned the statue spoke of its Roman dress, and I do not think that the boy could have had any definite idea of what that was. If he described it from remembrance of what he had read, he would naturally have said that it was dressed in the Roman fashion. The operator, it should be remarked, had never seen the statue, nor were there at that time, any engravings of it in this part of the country.

The boy was brought back to Boston, and at my request, the operator went with him to Quebec.—He said that there he saw stone walls on which squirrels were running, and children playing; that he saw a city and a fort, the fort was on a high rock above the city,

"What is there on the walls beside children and squirrels?"
"Nothing."
"Are there not cannons?"
"The cannons are below the walls."
"Do you see any soldiers?"
"Yes."
"What is the color of their coats?"
"Red."
"What kind of people are there in the city?"
"English, with plenty of French, Scotch and Irish"
"Where is the city?—In what country?"
"I do not know."
"Is there any water near the city?"
"Yes, a very large pond."
"You are mistaken, it is not a pond."
"It is, because the water is fresh."
"No, it is not a pond, it is a river."
"I tell you it is not a river; river water is salt and this is fresh."

This answer was remarkable, inasmuch as a boy brought up in Boston, knowing no river but the mouth of the channels, would naturally think river water salt unless reading had corrected his ideas.

"What is there in the river?"
"Many ships, one of them a man of war; a seventy-four, as large as that in Boston Harbor."
"What do you see on the opposite side of the water from the city?"
"Pine trees, and men at work digging."
"What time is it at this city?"
"Early in the evening."
"What time is it at Boston?"
"Ten minutes to nine."

This was correct to a minute.

The boy was then brought back to Boston; and after a few minutes interval, the operator asked him to accompany him to his mother's house in France.

"Come, get into this ship."

The boy was made to step into a rocking chair, where he stood some minutes, balancing himself perfectly without raising his hand. He was then told to seat himself in the chair and go to sleep for a fortnight. He accordingly sat down and leaned his head against the back of the chair. He then left him and conversed with us about ten minutes, at the end of which time he called to the boy.

"Come, wake up. Here we are in Havre. How long have you been asleep?"
"A fortnight and one day."
"Did you ever sleep so long before?"
"Yes—but I was awake in the day time."
"How do you like France?"
"Very well."
"Will you take a glass of wine with me?"
"No."
"Why not?"
"I do not want to, I never drank any wine in my life."
"You must—this wine is very good. Here drink it."

With much hesitation the boy raised his hand to his mouth and pretended to drink.

"Do you like the wine?"
"Yes, it is very pleasant."

The boy, when he came out of the magnetic state, refused a glass of wine that was offered him, and said that he had never drank any in his life.

He took the boy ashore to a hotel, where the sleeper said he saw the landlady and some drunken sailors.

"Let us leave Havre," said the operator, "and go to Brest, where my mother lives. Ah! here is Brest, how do you like it?"
"It is handsomer than Havre."
"True, here we are in the streets—what do you see?"
"Very fine trees and the theatre."
"What words are there in front of the theatre?"
"Nothing but the word *theatre*."
"True, let us go to my mother's house. Do you see it?"
"Yes, it is on a hill with a fence about it."

The operator told us there was a fence about it, but it was not upon a hill.

"Let us go in. What do you see?"
"A lady sitting alone in a room—she is sewing; she has had sore eyes; her eyes are better than they have been, but they are yet weak."

The last time the operator heard from his mother, she was much troubled with weak eyes.

"What else is in the room?"
"Books—I do not know what kinds; they are not English."
"Has this lady any children?"
"Yes, two sons and three daughters."

"True, where are her daughters?"

"They are gone out to fetch in wood."

"How does this lady support herself? What does she do for a living?"

"Nothing; her daughters support her by sewing."

"True—where are her sons?"

"One of them is in a ship, on the coast of England. He is well, quite well. He is in the middle of the ship reading. The ship is called the Empire; she will return to France in about a year. He is a midshipman."

The operator told us that his younger brother was what the French style lieutenant of a frigate, answering to the American passed midshipman. When he heard from him last, he was on board the Cassard, which has latterly been laid up in harbor, and he could not tell whether he had been transferred to a vessel called the Empire or not.

"Where is the other son of this lady?"

"He is at No 5 S——— Place, Boston."

"What is he doing?"

"I do not know."

"Let us go to Caen, in Normandy, where I was born. What do you see?"

"A small brook."

"True—let us jump over it. What more do you see?"

"Another brook."

"True again—let us jump over that also. What more do you see?"

"A large meeting house. I know it is a meeting house, because it has a steeple."

"Let us go on."

"I see another meeting house larger than the other."

"What do you see in it?"

"Two or three hundred people; more than one hundred are women, and the rest are men. One is apart from the rest talking to them."

"What does he say."

"I cannot understand him."

"Do you know what language he speaks?"

"No."

"Tell me what he says; repeat some of the words."

"I cannot; I do not understand him."

"You must tell me, I insist upon it."

The boy listened for a moment or two, and then slowly and reluctantly said "*Mon Dieu.*"

"Do you know what *Mon Dieu* means?"

"No."

"Are you sure he said that?—Did he not say *Mort Dieu*?"

"No, he said Mon Dieu."

I then requested the operator to take the boy to Nismes, and let him describe the famous *Maison Quarree* or Square House, with the appearance of which I was somewhat familiar. He did so.

"We are in Nismes. What do you see?"

"A large hotel."

"Let us walk on. What do you see?"

"A large building made of marble. It is twice as long as it is broad. It has four columns at the end."

"How large is it?"

"I do not know."

"Look at it carefully, and estimate its size."

"It is about one hundred feet long, and fifty wide."

"What is inside?"

"Glass cases containing curiosities. I do not know what they are—they are mostly of stone."

N. H. Carter, in his letter from Europe, says—"We went to the Maison Quarree, or Square House, a parallellogram about 80 feet in length, 49 in width, and upwards of 60 in height. The only entrance is at one end, where there is a splendid porch, supported by *ten* columns, thirty feet high, and three feet in diameter." Ten columns each, three feet in diameter, in front of an edifice only forty feet wide, must, of course, be in two rows, which would give five to each row, so that the boy was not far out of the way in his statement. Mr. Carter continues: "In May, 1823, it was converted into a museum. It is now filled and surrounded with a great number of Roman antiquities found in the neighbourhood of Nismes.—The articles consist of altars, sepulchral monuments, specimens of Mosaic coins, and various kinds of sculpture."

As it was now growing late, the boy was brought back to Boston, and told to examine the bodies of those present. A gentleman whom I have known for a long time to be of infirm health, was first presented to him. The boy took my friend's hand, and feeling his wrist carefully for a minute, bent down his head slightly, as if looking intently at something, and then said:

"He is ill—he is consumptive. He does not take exercise enough. His lungs are weak, his stomach very weak. He must not drink tea or coffee—he must go south; this climate is bad for him. He must not go to the West Indies, it is too hot there, he must travel about, and he will be quite well in six months. His brother died of consumption; his mother died of lung fever, but the doctor thought it was consumption."

This, my friend said, was all true, as far as he could judge.

This, dear sir, is an exact transcript of the clairvoyant remarks of the boy, and of the questions put to him. Deception and collusion were out of the question, and there was, indeed, no motive for them. All present were believers in human magnetism, and mostly relations of the gentleman who was chiefly concerned in the experiments, so that no advantage could have accrued to him from deceiving them.—The boy could not, in most cases, have derived his knowledge from the mind of the mesmeriser, or of any one present, for he told things which none of us previously knew.

Should you care to hear further from me on this subject, I will send you an account of some still more remarkable examples of the same kind.

Truly yours, R. C.

Boston, Mass. Aug. 27, 1842.

For the Magnet.

CASES OF SOMNIPATHY.

Mr. Editor:—Your remarks in No. 2, under "Abuses of Magnetism," and "Caution," have induced me to state certain facts which have come under my observation, while pursuing Magnetism; but before referring to them, I would state, that I have several patients whom I am treating by Magnetism. The first is a lady, who has been very unwell for about eight years, afflicted with prolapsus uteri, dysmenorrhea, severe pains in the lower part of the spine, very foul stomach, with costiveness and dyspeptic symptoms, at times hysterics, neuralgic affection of the face, general debility of the nervous system, &c., has had various physicians to no purpose; has been magnetized for about five months, daily, and is very nearly cured—states, that in one month she will be perfectly cured. This lady is an excellent somnipathist.

The second is a gentleman, who has suffered for many years with dyspepsia, and dropsical symptoms—growing stronger daily—no somnipathy. The third is a lady with epileptic fits of several years' standing, has been magnetised about a month, and improves rapidly—fair somnipathist. The fourth is

a case of chorea from childhood, a young lady 18 years of age, gaining very fast, is magnetised daily, and is a good somnipathist. The fifth is a lady with disease of the heart from acute rheumatism, who is, probably, the best somnipathist in the country. I have others, but will not refer to more at present.

I will now attend to the above noticed facts.

1st. Having heard a great deal about moon, star, and sun visits, I caried several patients at different times, to the sun, to the moon, to heaven itself.—They all gave singular and beautiful descriptions of these places, but *their statements did not agree in a single instance.* Much pain in the head, both during the magnetic, and subsequently, in the natural state, invariably followed these imaginary journeys, and other unpleasant feelings which caused me to suspend these "*marvellous and astonishing*" experiments.

2nd. The fourth case given above, of chorea, was, and I presume is, a good somnipathist; at first she was not magnetized by me. The individual who magnetized her, having, as she said, in a state of somnipathy, injured her by trying experiments in clairvoyance, power of the will, &c., so prejudiced her against him, that she would no longer be magnetized by him, and to this moment, nothing can overcome this antipathy. I now magnetize her, and she goes very readily into the magnetic state, but I can do nothing with her; she will not examine diseases, be in the least subject to the will, nor in fact, do any thing but sit still and converse sociably. She says this is necessary to her recovery, and she does not intend to be again injured. Here the will, positively, has no other effect than producing the magnetic repose.

3d. The fifth case, I have said, is the best in the country. Her detection of disease, even to the most minute symptoms, have astonished all who have witnessed it, and her prescriptions have, as yet, never failed in producing the desired result in any one instance. Her clairvoyance is likewise remarkable.—I will relate an instance or two.

While in this condition, she was requested by a lady, to visit her son at sea, in the Pacific ocean.—The questions were made by myself, who was ignorant of the truth or falsehood of the answers. To the proper questions I received the following replies: She saw the lady's son—he was sitting in the cabin —was a lad about 12 to 14 years of age—was well, and thinking of home—had written no letter, but his mother had heard from him through another person. Lest some may suppose that leading questions were given, I think best to mention them. "Do you see him? How old does he appear to be? Is he well? Has he written home? Was his mother at home when she heard from him?"—She was at a temperance meeting at the time she heard from him.*

Another lady present, then requested to have her visit her husband, Capt. W., a perfect stranger to me. I then said to my patient, "Come, as we are now at sea, let us visit this lady's husband and see how he is?" After a brief pause, she replied "that she saw him, but," says she, "he is not captain, he is mate, there's the captain," (pointing out her finger.) This rather staggered me, as I feared she would spoil all by this mistake, but felt perfectly pleased when informed by the lady, that it was true. "How is he?—well. What is he doing?—talking. Has he written home?—yes, he has written a great many letters, but she has only received three." This was correct.

When Dr. Brevoort, the Phrenologist, was here, he visited this patient one evening, and among other things, she accurately, and without a multiplicity of questions, described his house at Williamsburg, and informed him that a lady, which from her description, he judged to be his wife, was holding a boy of his in her lap—he had been eating something which had made him sick—he was at the time she saw him, vomiting—would soon get over his sickness. A few days after, Dr. B. received a letter from his wife, in which it was stated, that his son had been eating whortleberries, which had made him sick.

Upon the whole, this is one of the clearest cases on record; it is immaterial whether she knows individuals, places, or any thing else, her descriptions are correct; there are times, however, such as when she has over-exercised through the day, previous to being magnetized, &c., in which, as a clairvoyant, she is good for nothing.

4th. But what is the result of this? For a long time, she has, in her natural state, complained of a pain in her head, a confusion, as it were, of her intellect, at times, a total forgetfulness of every thing, and she has just recovered from an inflammation of the brain, whether owing to magnetism or to exposure, I do not pretend to say, though I am inclined to believe the latter.

5th. I have, however, noticed in all patients that they never feel so well after being experimented upon in any way, as they do when confined merely to their own diseases, and those of individuals presented to them for examination. Whether experiments in reality injure them, I do not know, though I have had one or two on whom it appeared to produce no unpleasant effect at all; however, I send you the accompanying letters, translated from the French of M. de Puysegur, in which you will observe the evil effects of experimenting.

6th. I will state here, that a somnipathist has informed me, that if immediately previous to restoring them to the natural state, I make many passes on the head, face, and other painful parts, so as to remove the pains, and then allow them to sit a few minutes to calm and collect themselves, no unpleasant effects will take place. I have tried this, and with success.

7th. As to the will, I will remark, that I have never found a patient completely subject to it; they only obey to suit or please themselves, and if they say "NO," determinedly, all the will in the earth could not change them.

Yours respectfully,

J. KING, M.D.

New Bedford, Mass., July, 1842.

LETTER.

FROM JEAN GASPARD LAVATER, MINISTER OF THE HOLY CHURCH, TO THE MARQUIS DE PUYSEGUR.

Zurich, Aug. 31, 1785.

I take the liberty, dear and respectable benefactor of humanity, of interrupting you in your occupations, which are as astonishing as useful; and I do not ask pardon, for I know that you love confidence. Have the goodness to read the accompanying memoir, written by my brother Diethelin, a physician, I dare to say, equally skilful and faithful, and above all, possessed of a good understanding. It is my dear and amiable wife, for whom I implore your assistance.—Last evening, she was, as she believed, on the point of expiring. She felt more unwell, more debilitated than ever; she cried, laughed, wept, and afterwards was very weak. I throw myself upon your human-

* How is it proved that the boy was sitting in the cabin and thinking of home at that time? The above, and what follows, may or may not be true, either in whole or in part. —[Ed.]

ity; will you have the kindness to answer me by one of your secretaries, as soon as possible.

J. G. LAVATER.*

OBSERVATION BY PUYSEGUR.

The testimonies of esteem given to me by a man as celebrated as M. Lavater, left me no doubt of the confidence which he placed in me; I, therefore, indicated to him without reserve, the process which he ought to employ to magnetize his wife, and I added, that if he operated with the firm conviction of the existence of the agent, of which I assured him he would recognize in himself the power, he would obtain the most satisfactory results. The next letter will show the docility with which the minister was willing, faithfully to follow my indications.

Sunday, Sept. 11, 1785.

Thanks be to God, respectable P., a few days after those horrible effects of animal magnetism, my wife has gone into a somnambulism, the most tranquil, and has indicated to us all the means for saving her. Every thing goes on well. I have magnetised her, and by my unworthy hand has the Lord saved her. She has indicated many simple means for other patients of her acquaintance. I dare add nothing further, except the most sincere assurance of my gratefulness for your favor, although unaccompanied with any good counsel; I simply believe that it was impossible for you to give me any.

J. G. LAVATER.

M. PUYSEGUR'S ANSWER.

Strasburg, Sept. 19*th.*, 1785.

I cannot express to you, sir, the pleasure which your letter has given me, by which you inform me, that you have had the happiness of recalling to life, madam, your wife. Since your good and honest intentions alone, have led you to procure an effect as astonishing as it is salutary, therefore, for the future, take counsel on the magnetic process only from yourself; you may have recognized by this time, how far I was from approving those exterior processes, which others have heretofore employed; in a word, you behold, convinced of this glorious truth, that those who firmly believe that the Supreme Being has given to them a means of doing good, and who are willing to do it zealously, to their kind, will have the power; but I cannot, sir, with a man as commendable as yourself, enter more lengthy into the details necessary to be known, in order to proceed with security and safety in the delicious way into which you have entered. Behold, in a few words the principle, and your mind and understanding will teach you the rest.

Our soul emanating directly from Deity, enjoys itself only in order and good.

Our soul, then, inspires us with the thought of good.

From the thought of good springs the will of doing it.

Even to the present time all its actions are moral. The magnetic fluid which surrounds us, or, more properly, our animal electricity is at the disposition of our will, the same as our arms and our words.—This electricity, carries itself wherever our will directs it; the more the will is *good*, the more it partakes of a well directed mind, in perfect harmony with its principle, the greater degree of strength will our electricity possess. Let us believe, that it always takes the impression and the character of our will. A man, then, who constantly and ardently wills to do good, CAN NEVER DO EVIL; this truth is incontestible, and you will recognize it more and more. If, in magnetising, I perceive the least evil of the nerves, the slightest twitchings or convulsions, all my attention and will is directed to this effect, which is unpleasant to me; I *will* that it does not continue, and it ceases, except it be a crisis favorable to the cure of the disease.

I would be willing, sir, to enter into further details on the physical effects of magnetism; the best idea which you can have of it, is to compare its influence, to the effects of electricity, not electricity considered as a fluid, which is an error, but as motion. I strike a billiard ball which communicates with five others, immediately the last escapes or is thrown off; the electrical chain is absolutely the same thing, and animal magnetism steps in to enlighten us on this cause so much sought after in electricity, and which will cease to be a problem any longer.

We men are perfect electrical machines; our minds are the handles; we electrify positively and negatively any body to whom we wish to do good, because nature, wisely and passively, submits to our directing. It is only necessary to will that sleep takes place, and the eyes close; it is only necessary to will for them to open; the actions or gestures are of the greatest indifference; in order to fix the mind more attentively and vigorously, it is necessary to act or manipulate at a little distance, or even to touch; but once in relation with your patient, if you do not fear the secondary causes, you will be able to act as well at a distance as near by.

PUYSEGUR.

LETTER IV. FROM J. G. LAVATER.

Zurich, Oct. 4, 1785.

I persecute you, friend of mankind, and friend of Lavater. A friend to whom I owe much, has placed in my hand the accompanying paper. Do you think he may be cured,—that he can be placed in a state of divination? He does not believe it, but a word from you, of whom he has an exalted opinion, will give new life to him; he is very honest, but very unbelieving.

LAVATER.

OBSERVATIONS BY PUYSEGUR.

I have not found the paper which accompanied this letter, neither the copy of my reply; but I remember I strongly disapproved of the word *divination*, of which M. Lavater made use to designate the lucidity of somnambulism. This lucidity, I wrote him, may be only the development of a human faculty, but never a state of *divination*. In carrying, and in exalting the thoughts of somnambulists on objects out of their reach, we *run a risk of fatigueing the springs or sources of their intelligence.* The thoughts of a magnetised being, I added, are like a mirror, from which is reflected all those of his magnetiser;* far then from receiving the manifestation of a truth from his replies, we oftener draw only the reflection of our own peculiar errors. In conclusion, I advised him no longer to prolong, for the satisfac- of his curiosity, the somnambulism of his wife, and to occupy himself, for the future, only in curing her as promptly as possible.

M. Lavater, in this instance, placed, probably, but little value to the advice which my experience dictated to him, for he wrote me no more. Several years afterwards, I learned that his wife had become insane, and that, instead of attributing it to his own

* Accompanying this letter was a recital of the habitual sufferings &c., of the patient; also of the incoherent effects of evil guidance of magnetism upon her.

* Recent experiments have proved this not to be the case with all somnambulists.—Translator.

imprudence, he had imputed all the evil to animal magnetism. I have since learned that he had imagined that the magnetic action was dangerous, and was able to proceed only from the influence of a bad principle.

For the Magnet.

REMARKABLE PHENOMENA.

Dear Sir,

The following incidents occurred in the midst of a course of lectures, given at Hempstead, N. Y. in the last week of August, 1842. On the Thursday evening lecture, the Rev. Silvester Woodbridge, Pastor of the Presbyterian church, and Dr. Judson, Dentist, were selected as a committee of investigation for that evening. Dr. Judson was requested to examine the pulse of the patient previous to any operation, that he might be able to determine the degree of its acceleration after she was magnetised. This he did, by taking her left wrist in his right hand. I then proceeded to magnetize her in the usual manner; but, before I had completed the operation, she began to pinch, pull, twist, and throw her left hand, raising it towards the shoulder, and throwing it off from the body. In answer to my questions, as to what ailed her hand, and how it felt, she replied, that she did not know what was the matter with it, but that it felt very bad and strange—she felt as tho' she would like to tear it off and throw it away. I endeavored to operate on it, but with little success. She became very much agitated for some time, throwing her arm about, and complaining that the agitation fatigued her and made her weak. I was unable, either to give my audience any explanation of the matter, or proceed in my experiments. At length, however, by persisting in my operations, she became in a measure quiet, and I endeavored to make my usual experiments. At the close I awoke her, when her left arm assumed a rigid condition, the elbow and wrist joint being turned in opposite directions. The patient said she had no recollection of what she had suffered during her sleep, and immediately asked, what I had been doing with her arm. It now repelled the touch of myself and every other person, except Dr. Judson's right hand. It even repelled her own right hand; and whenever Dr. J. presented his left hand, it was repelled, except he presented it at her left shoulder first, and then passed it over to and directly down her left arm to the ends of her fingers; his right hand, however, ever attracted it, and by a few passes it put her almost asleep. She was finally much relieved by the passes from his left hand, so that she could take hold of it with her own hand, and also allow others to touch it. But this was by no means a termination of the singular phenomenon.

The next day I called, with her, at the Rev. Mr. Woodbridge's house, for the purpose of some private experiments, but as soon as magnetised, her arm resumed the same rigid and repulsive state as it had the evening before. As she was evidently in greater distress in the sleep-waking, than in the natural state, I immediately awoke her, but her left hand and arm, up to just half the joint of the elbow, remained in its state of rigidity. She was unable to have me touch it, without receiving a shock, even when unobserved by her in approaching it. For an experiment, I presented a razor within 18 or 24 inches of her hand: in an instant her hand was attracted by it, and she extended her arm towards it. I then made three or four passes down the arm with the razor in my hand, when, to our surprise, she was fully magnetised; and now, we could not approach her on either side without being repelled. We endeavored to wake her, but in vain. As her desire to have the razor became great, Mr. W. conveyed it out of the room, and concealed it in his carriage-house; but before his return, she appeared to be literally drawn out of her chair, and went in pursuit of him. He met her on his return at the threshold of the back door- where, from an obvious repulsion by him, she was obliged to stop. Here she stood for some time, in apparently a good deal of distress, manifesting a great desire to pass out, yet unable to do so. Her respiration increased, limbs and joints trembled, and she almost sunk to the floor. Seeing a pair of smoothing irons in the room, I caught up one, and presented it in front of her, when she retreated, as if repelled, but recovered her position after it was taken away. In the mean time her eyes were fully closed, and her hearing gone. As her agitation increased, I requested Mr. W. to remove the razor, if necessary, out of the village. This he turned to do, when she followed him, both running at full speed. Though her eyes were yet closed, she pursued him directly to the carriage-house, and back through the garden and the hall of the dwelling to the front door, which he had violently shut after him. She reached out her hand to open the door, but as it approached the large iron lock upon it, she jerked back her hand without touching it, and appeared to receive a shock. Here she stood, trembling and much agitated, as though unable to move in either direction. Mr. W. carried the razor out of the village, when her agitation gradually subsided. She, however, kept her place till he had reached within a few steps of his house, on his return, when she suddenly awoke, returned to her chair, and sat down.

Upon inquiry, she declared she had not the least recollection of what had passed during her sleep, but there was no change in her left arm. It remained, as before, rigid, and in a state of repulsion, the *radius* of the arm raised towards the shoulder, and the hand drawn down towards the feet. Being somewhat exhausted myself, and supposing that, to repel this positive fluid from the arm, would require a person of strong magnetic power, Mr. Anderson, the hotel keeper, was sent for, and directed to make the passes from her shoulder down to the ends of the fingers, and throw it off with a sudden flirt of the hand. I felt, also, afraid of the influence of Dr. Judson, and wished to try the power of some other person. Mr. Anderson had operated but a few moments, when we had indications of relief. He was soon able to touch her arm, and pass his hand down its whole length. After a short time, it became quite relaxed, and fell down by her side. It was, however, numb, and she was unable to move it; it also still repelled even herself, so that she could not bear it to rest on her lap, or even look at it, without receiving a shock. In this condition, it was left to remain all that day. At night, it had become much swollen and inflamed. The affection seemed to spread itself further into the body, and threatened to paralyse all that side, including the internal organs. The patient thought, that if Dr. Judson should magnetise her right side fully with his left hand, keeping his right hand from her as much as possible, she would be entirely relieved.

As the hour had now arrived for my lecture to commence, and not feeling at liberty to postpone it, I concluded to have the experiment made in the presence of the audience. I therefore made statements of the facts in the case, and offered my proposition to those present, and invited them to select two scientific gentlemen to act as a committee. They selected Dr. Webb and Lawyer Haddon. When the patient was placed in the chair, her arm appeared to be in a worse state than it ever had been in before. The

swelling and inflammation was great, and the repulsion extreme; she was obliged to keep the head almost constantly turned from it, to avoid the shocks she experienced from even glancing at it. It was unfortunate for the science, that her suffering was so great that I did not feel justifiable in allowing the committee to touch it. They could, however, see its state, and the evident distress it occasioned the patient; it could also be observed by the whole audience. Dr. Judson was now directed to approach the right side of the young lady with his left side towards her, then to magnetise her with his left hand, and when fully magnetised to pass the influence over into the left shoulder and arm of the patient, by making transverse passes, and then passing them down the arm to the extremities of the fingers. This he did, without touching the patient. In the course of half an hour, the rigidity began to yield. The blood receded from the arm, and although the swollen condition was not entirely reduced, yet the hand became white, and of the appearance of a dropsical state, instead of an inflamed one. By degrees, the patient was able to approach it with her opposite hand, until finally she could bear to clasp her left wrist in her right hand, when she commenced assisting the operator by her own passes. In about an hour she was entirely relieved except the swelling, and that was only partially reduced.

The patient was then waked up by Dr. Judson, after which I magnetised her myself without any unpleasant effects. The next evening the hand appeared as well as ever. In the course of that day, however, the patient went into the Doctor's room and stood by the table, on which was spread out his case of dentistical instruments. She had stood by the table but a few minutes, when she found herself almost asleep, and was obliged to leave the room. When I came to be informed of this fact, I felt assured, that the next time she was magnetised she would be again affected as before: and such was the fact—I magnetised her again that evening, and again her arm became rigid. The repulsion also was as great, whenever the arm was touched. I now invited several gentlemen to my room, to witness the attempt to relieve her; among them were Lawyer Haddon and Mr. Anderson, the latter of whom I desired to operate, after I had put him in communication. But very soon after those persons entered, she commenced extending her arms towards various persons, and suddenly jerking them back, saying, "something attracts, and something repels them." At this I requested every person to divest himself of every thing containing iron or steel. Mr. Haddon drew from his pocket a very large bunch of keys, a knife, and several other articles. And towards him the patient had extended her arms a great many times. But still her agitation increased, and she appeared to be particularly attracted and repelled by Mr. Haddon. Her right side attracted the iron and repelled the steel, while her left side attracted the steel and repelled the iron. Accordingly she received first a shock from the steel on her right side, and then another from the iron on her left. In this way she was constantly harassed, all endeavors to relieve her proving ineffectual, till her distress seemed too intolerable to be endured. She complained that it seemed as though it would tear her assunder in the centre of the body, and that she would prefer death to such suffering. The distress of the patient thus augmenting, I insisted that either the articles were not removed to a sufficient distance, or that iron or steel was in the room. Lawyer Haddon sat on her right side, at some distance from her, and by him she appeared to be mostly affected; so that her right side seeemed repelled by him, while her left hand and arm were drawn across her body towards him. I therefore insisted that he had steel about him in some shape or other. But he declared that he had emptied his pockets, as did also the rest. In the mean time Mr. Anderson was continually operating, but without any benefit to the subject. In the midst of the excitement, Mr. Haddon changed his seat to the left of the patient, unobserved particularly by any one in the room. The patient being asleep, her eyes closed and blindfolded to prevent the lights from injuring them, she could not have been conscious of his change of position, except from the magnetic influence. Yet Mr. Haddon had not more than seated himself, resting his chin on the head of his cane, when the left arm of the patient was extended towards him. Before this her arm was extended across her body; now it was extended from the body. As she reached out her arm, her countenance assumed a very pleasant expression, her hand opened and shut, and she remarked, "something feels good at all events." On being asked what felt good? she replied, "I don't know, something attracts it, it feels good; ha! ha! it is pleasant, I think it is steel." At this, I could not refrain from quite excited feelings towards lawyer Haddon, believing that he had practiced some deception, Finally, he pulled the head of his cane, and drew out a large sized sword. "There,' said he, "take that away, I retained it *designedly*, and am satisfied she was affected by it." This was then taken out, and put with the other articles in the ball-room. But they seemed yet to get a deeper hold of her. I requested that they might be removed out of the house, but as no one took a sufficient interest to do it, I led her into the middle of the street, and then out to the outer part of the village, where Mr. Anderson, by operating on her right side, fully charging it with his own fluid, and then passing it over to the left shoulder, and down the arms to the ends of the fingers, also down her left side to the ends of her toes, relieved her almost entirely. This was done from the patient's own direction. We then woke her up, as she stood in the street. She was much surprised on restoration to consciousness, and even went into quite a rage, supposing she had been imposed upon. She, however, became appeased on an explanation, and walked with me to the house.—As we entered the hall, Mr. Haddon with his cane in his hand, and several others, stood by the table conversing. When we passed them to go up stairs, she took a sudden sheer off from them, towards the wall, at the same time her body shuddered. She could not have been aware of the particular cause.

The next day she appeared very well, except that she, once in a while, experienced slight shocks. Towards night, however, we had a few flashes of lightning at a great distance, from each of which she experienced a slight shock. On Monday afternoon a cloud passed over quite heavily charged. The first flash shocked her heavily. I then ordered her to bed, and had her room darkened, so that she could not see the flashes; nevertheless, she received a shock from every flash. After the cloud had passed over, she was at once conscious of it, and said she felt better, and did not think her arm would trouble her any more. And thus far it has not. It has been magnetised repeatedly since, but no such symptoms have ever attended, I have stated these facts just as they occurred, and shall submit them to you without comment. They are simply an amplification of what has been observed by almost every magnetiser, except in one respect. And that is, the remarkable phenomena of one side of the same person repelling the other, so that the body was at war with itself. If such an instance was ever before known, I never heard of it. Yours respectfully,

O. K. LAMESS.

Brooklyn, N. Y. Sept. 14, 1842.

ELECTROTYPING.

The process of Electrotyping, introduced by Professor Jacobi, of Berlin, is exciting a good degree of curiosity amongst our citizens, and we are often asked what that process is. It is said to be very simple. By it the impress of coins, medals, and engravings, are transferred to copper, representing with the most perfect accuracy even the delicate lines of the original, and copies of rare and curious works of art may be multiplied to any extent.

A few years since, Professor Jacobi, of Berlin, succeeded in producing lines of metallic copper upon plates of the same metal, from a solution of Blue Vitriol (sulphate of Copper) by means of Galvanism. Numerous experiments were subsequently made to produce casts of medals, if possible, copperplate engravings, and other works of art, which were highly successful. Rare and curious coins, medals, engavings in copper, steel, &c. can now be copied, with the most perfect accuracy. The minute exactness and great delicacy of the process are such, that not only every leaf, line, or letter of the medal or engraving is correctly transferred, but also any slight soil or of dimness occasioned by the breath or touch of the fingers is also copied with equal precision. For minuteness of execution it equals the Daguerreotype. *Daguereotype plates have been copied by means of Electrotype.* This, perhaps, is the most striking instance of the exquisite delicacy of the process.

The chemical phenomena attending it are interesting. Indeed it may well excite surprise that from a beautiful transparent liquid, solid plates of copper can be obtained, and may be made to assume any form corresponding with the article to be copied.

Two liquids—one the solution of Sulphate of Copper, and the other water highly acidulated, are brought in contact with each other, yet in such a manner as to avoid mixture. This is effected by interposing between them some animal membrane. A circular current of Electro-Galvanism is then made to revolve through the two liquids both of which undergo chemical decompositions. The copper held in solution in the blue liquid is REVIVED and precipitated, not in the form of powder, but according to its own principles of crystallization. It is as if the copper when revived, was reduced to its ultimate atoms, and then by virtue of its christaline properties, these atoms which must be infinitessimally small, unite to a solid copperplate. If a medal, or matrix containing the impression of a medal, be placed in the solution in such a manner as to form one of the poles of the Electrotype, it will receive the deposite of copper, on one side of which will be a perfect *fac simile* of the medal.

Engravings have in this manner been made; and *used extensively in Printing.* No difference could be seen between the picture struck off from the original engraving, and those printed from the Electrotype copy.

VOLCANIC ACTION.—A fact of great interest has been proved, by the borings for Artesian wells in the suburbs of Paris, viz. that as we go toward the centre of the earth, the temperature increases at the rate of about one degree for every 50 feet. That the whole interior portion of the earth, or at least a great part of it, is an ingenious ocean of melted rock, agitated by violent winds, though I dare not affirm it, is still rendered highly probable, by the phenomenon of volcanoes. The facts connected with their eruptions have been ascertained, and placed beyond dispute.—How then, are they to be accounted for? The theory, prevalent some years since, that they are caused by the combustion of immense coal beds, is perfectly puerile, and is entirely abandoned. All the world would never afford fuel enough for a single exhibition of Vesuvius. We must look higher than this, and I have no doubt that the whole rests on the action of electric and galvanic principles, which are constantly in operation in the earth. We know that when certain metals are brought together, powerful electric action is evolved, and a light is produced, superior even in effulgence, to the splendor of the sun. Now, if a small arrangement produces such results, what may we not expect from combinations of those immense beds of metals, to be found in the earth? Here we have a key to all the grand phenomena of volcanic action. Illustration on a small scale, may be seen in an instrument called the thermo electrical battery, made of zinc, bismuth, and antimony, packed in a box and varnished. In this, heat is evolved below, while the top is cold; and here we have the very case of the volcano, when in the interior, a fiery ocean is heaving its surges, while its peak is capped with everlasting snows.—[*Professor Silliman.*

IMPORTANCE OF TRUTH.—Who can tell how soon science may throw her light on that truth that is now discarded, and show its applicatiou to some useful purpose? The falling of an apple is an insignificant thing, considered in itself, yet it was the clue that led Newton to some of the grandest discoveries in Philosophy. How many ages passed away, before a Fulton conceived the utility and application of steam? Yet every old woman that had ever boiled a tea-kettle had generated steam; there was the truth, and the man that first applied it to propelling a boat with paddles on the Delaware, was thought to be crazy, by the wiseacres. The fact is, we have conceived certain things to be impossibilities, and in our vocabularies this word means, something we have never known. The circulation of the blood was an important discovery in Medical Jurisprudence; and would not the simple fact of the circulation of the blood have been a truth worth preserving, supposing it had been accidentally discovered by some one who knew not what application to make of it? And is any man prepared to say, that all that may be known of value, in relation to it, is already known? Let me say, truths are previous things; they are the pioneers to grand and useful discoverics; they are diamonds that are sparsely strewn along the shore of time; if we find one, let us preserve it, husband it as a miser does his gold; the day may come when we can use it. Pure science is always modest. It vaunteth not itself, is not puffed up, acteth not rashly, but rejoiceth in truth.—*Pitts. Ch. Advocate.*

AN AERIAL EXCURSION.—Mr. Wise, the aeronaut, made an ascension in his balloon on Saturday from Bellfonte, and safely descended. He describes the trip in glowing languauge, and says:

"I have at present in use a black balloon, which creates a congenial atmosphere around it in the cold upper regions of the atmosphere, from the radiating superiority of that colour over a lighter one. It is now beyond a doubt in my mind established, that a current from west to east, in the atmosphere, is continually prevailing within the height of twelve thousand feet from the level of the ocean. Both my trips this season were strong proofs of this. At Lewistown, I arose with the breeze from the south-west, and finally landed east of that place."

CURIOUS DISCOVERY.—Plants will grow more luxuriantly beneath glass of a blue, violet, or indigo color; but this growth is wholly checked beneath yellow and red glasses.

THE MAGNET.

NEW YORK, OCTOBER, 1842.

THE MAGNETIC NATURE.

It will appear, we think, in the course of these articles, that we have some good and sufficient reasons for applying the term magnetism to that peculiarity in our nature, now under notice. At the same time, we have no partiality for this term, if a better one can be found. What we now wish, is to give the reader some idea of that singular *susceptibility* of the nervous system, which seems to have resulted in so many strange phenomena, which have heretofore remained unexplained.

In our last, we showed the power which one's mind has over his own nervous system. We will now give a few facts, to show how the nervous system often sympathises with the influence exerted over it, from others, and in proceeding to the following facts, the reader is particularly requested to bear in mind the statements already made with regard to the electrical forces, which the Deity has subjugated to the power of the human *mind*. It will yet be found true, we have no doubt, that in no one sense did God create man in his own "likeness," more than in that of his mind; by which God gave to the human WILL the self-determining power, and to a limited extent, control over matter. Indeed, it is worthy of notice, that almost in the act of making man from the dust, and breathing into his nostrils the "breath of *lives*," God, by an express declaration, gave him "*Dominion* over the fish of the sea, and over the fowls of the air, and over *every living thing that moveth upon the earth*." And this ordination of the Deity, it will be seen, is in most beautiful harmony with the positions we have assumed with regard to the power of the human mind over the *attracting* and *propelling*, or contracting and expanding forces, before described.

This doctrine may have startled some of our readers, perhaps; but we hope they will suspend their decision against it till they shall have given the subject that calm and prayerful consideration which its importance demands, and without which, we cannot reasonably expect to arrive at the truth on any subject. There may be many truths in connexion with the philosophy of mind, which are yet to be learned; and it is, certainly, not the better way, for any one of us to come at once to the conclusion that, because a position is new to us, that therefore it is not true, and should be rejected as unworthy of notice.

We could not, of course, find room for any considerable portion of the facts we have at command elucidating this subject, but the following, it is believed, will be sufficient to bring it sufficiently before the mind of the reader:

"In a poor house at Harlem, under the inspection of the learned Dr. Boerhaave, a girl, under an impression of terror, fell into a convulsive disease, which returned in regular paroxysms. An interested by-stander witnessing her, was seized with a similar fit, which also recurred at intervals. On the day following, another was attacted; then a third, and a fourth; and finally, nearly the whole of the children, both girls and boys, came to be affected in the same manner. No sooner was one seized than the paroxysms pervaded nearly all the company. Every remedy was prescribed by attending physicians which their skill could suggest, but all in vain. They then applied to Dr. Boerhaave to come and examine the nature of this complaint, and to prescribe a remedy if possible. The learned doctor immediately observed that the disease was commnnicated from one to another by *sight*; and he inferred that it was the effect of imagination solely, and that he must apply his means to the minds of these children, rather than to their bodies. He resolved, therefore, on the experiment of diverting their minds from those paroxysms by rendering a fit extremely hazardous. Having apprized the magistrate of his design, he ordered, in presence of all the children, that several portable furnaces should be placed in different parts of the chamber, containing burning coals, and that irons, bent to a certain form, should be placed in the furnaces. He then gave these further commands:—that all medicine would be entirely useless, and the only remedy with which he was acquainted was, that the first which should be seized with a fit, whether boy or girl, must be burnt in the arm, to the very bone, by a red-hot iron. He spoke this with uncommon dignity and gravity, and it was completely successful. The idea of burning in case of a fit, was enough to enable them to counteract the tendency of their minds to fits, or these spasmodic affections, and the complaint occurred not again."—*Rees' Cyc. vol.* 19, *part* 2, *Art. Imitation.*

Some years since, a Mr. Perkins gained great celebrity, both in this country as well as Europe, for the cures he effected by the use of two small pieces of pointed metal, which he called "Tractors." However, we believe the popularity of his "Tractors" did not last long, after it was found out that wooden pins produced the same salutary effects, when applied to the bodies of diseased persons.

In 1808, and for some time after, a Mr. Austin, of Colchester, Vt., gave out that he had "the gift of healing;" and that he could cure diseases without even seeing the patient; and many were the accounts published at those times, of the cure of deafness, blindness, and consumption, cured by the "Prophet of Colchester," as he was called.

History gives us an account of one Valentine Greatracks, who lived in the time of Cromwell, and who proclaimed himself empowered of God to cure the scrofula, and other diseases. Many professed to be healed by the touch of his hand, and he tells us that even the touch of his *glove* had removed many kinds of pain, and fits from women.

About the same time a Capuchin Friar, by the name of Bagnone, pretended to "the gift of healing," by the touch of his hand alone. Multitudes attended him whereever he went, and many professed to experience the healing power, with which they believed him endowed.

The following interesting account is given in the words of the Rev. Charles Wesley, and may be found in Southey's Life of Wesley, *Vol.* 1, *p.* 141.

"To day one came who was pleased to fall into a fit for my entertainment. He beat himself heartily. I thought it a pity to hinder him; so instead of singing over him as had often been done, we left him to recover at his leisure. A girl, as she began her cry, I ordered to be carried out. Her convulsions were so violent as to take away the use of her limbs, till they laid her without at the door and left her; *then she immediately found her legs and walked off.* Some very unstill sisters, who always took care to stand near me and tried who could cry the loudest, since I have had them removed out of my sight, have been as quiet as lambs. The first night I preached here, half my words were lost through the noise

of their outcries; last night, before I began, I gave public notice, that whosoever cried so as to drown my voice, should, without any man's hurting them, or judging them, be gently carried to the further corner of the room; *but my porter had no employ the whole night.*"

Some years ago, we saw a work written by Pres. Edwards, giving an account of the great revival of religion which took place in New England, about the year 1745, in which were detailed a number of facts of this kind.

Most of our readers have probably heard, or read, of the strange occurrences which took place in Kentucky and Tennessee, some forty years ago, during what was denominated the Great Revival there. A particular account of them is given in Lorenzo Dow's Journal, and in the *Ed. Med.* and *Surg. Jour. vol.* 3, *p.* 446; and also by various others, which may be seen quoted in Powers' "Essay on the Influence of the Imagination over the Nervous System." The following account is from Dr. F. Robinson, of Tenn.:

"The churches in these states, at that period, (1800) were small and uncomfortable, and the people from necessity assembled in the open field at extraordinary meetings. These meetings lasted from three to five days.—They remained upon the spot day and night, and worshipped their Maker incessantly. The outward expression of their worship consisted chiefly in alternate crying, laughing, singing and shouting; and at the same time, performing that great variety of gesticulation, which the muscular system is capable of producing. It was under these circumstances that some found themselves unable, by voluntary efforts, to suppress the contraction of their muscles; and to their own astonishment, and the diversion of many of the spectators, they continued to act from necessity, the curious character which they had commenced from choice. The disease no sooner appeared, than it spread with rapidity through the medium of imitation. Thus it was not uncommon, for an affected person to communicate it to a greater part of a crowd who from curiosity or other motives had collected around him. It attacks both sexes, and every constitution; but evidently, more readily those who are enthusiasts in religion.—The contractions are sudden and violent, such as are denominated convulsive; being sometimes so powerful, when in the muscles of the back, that the patient is thrown on the ground, where for some time, his motions more resemble those of a live fish, when thrown on land, than any thing else to which I can compare them. During the intermission, a paroxysm is often excited at the sight of a person affected, but more frequently by the common salute of shaking hands. The sensations of the patient in a paroxysm are generally agreeable, which the enthusiastic class often endeavor to express by laughing, shouting, dancing, &c. Fatigue is almost always complained of after violent paroxysms; and sometimes a general soreness is experienced. It has not proved mortal in a single instance within my knowledge, but becomes lighter by degrees, and finally disappears." The author adds by a subjoined note,—"Some who took the disease in 1803, have not yet (1805) entirely got rid of it; but these instances of its long continuance, are very few."

These convulsions were commonly called "the jerks." Another writer, (McNeman) quoted by Mr. Powers, gives the following account of them:

"At first appearance, these meetings exhibited nothing to the spectator, but a scene of confusion, that could scarcely be put into human language. They were generally opened with a sermon; near the close of which, there would be an unusual outcry; some bursting forth into loud ejaculations of prayer or thanksgiving for the truth; others breaking out in emphatical sentences of exhortation; others flying to their careless friends, with tears of compassion, beseeching them to turn to the Lord. Some struck with terror, and hastening through the crowd to make their escape, or pulling away their relations;—others trembling, weeping and crying out for the Lord Jesus to have mercy upon them, fainting and swooning away, till every appearance of life was gone, and the extremities of the body assumed the coldness of a dead corpse. Others surrounding them with melodious songs, or fervent prayers for their happy resurrection in the love of Christ."

"*The rolling exercise* consisted in being cast down in a violent manner, doubled with the head and feet together, and rolled over and over like a wheel, or stretched in a prostrate manner turned swiftly over like a dog. They were sometimes driven in this manner through the mud, and were sullied from head to foot. Nothing in nature could better represent the *jerks*, than for one to goad another alternately on every side with a piece of red-hot iron. The exercise commonly began in the head, which would fly backward and forward, and from side to side, with a quick jolt, which the person would naturally labor to suppress, but in vain. He must necessarily go as he was stimulated, whether with a violent dash on the ground, and bounce from place to place like a foot-ball, or hop round, with head, limbs and trunk twitching and jolting in every direction, as if they must inevitably fly asunder. Sometimes the head would be twitched right and left, to a half round, with such velocity, that not a feature could be discovered, but the face appear as much behind as before. Head-dresses were of little account among the female jerkers. Even handkerchiefs, bound tight round the head, would be flirted off almost with the first twitch, and the hair put into the utmost confusion; this was a great inconvenience, to redress which, the generality were shorn, though directly contrary to their confession of faith. The *barks* consisted in being compelled to imitate the canine animal; and persons thus affected moved about on all fours, growling and snapping the teeth, and barking in so personating a manner, as to set the eyes and the ears of the spectator at variance. These persons, however, were the most gifted in prophecies, in trances, dreams, visions, fragrant smells, and delightful singing in the breast. Some were favored with an interview with their departed friends, and learned their different allotments in the invisible world; some saw the holy city, and heard the songs of the angelic hosts, others in their visions were employed in crossing rivers, climbing mountains, finding treasures, fighting serpents, or more delightfully employed in eating the fruits of the tree of life, bathing in clear water, casting off old garments, and putting on new."

The following account of these singular occurrences is from Dow's Journal, before referred to. In the year 1805, he preached in Knoxville, Tenn. before the governor, when about one hundred and fifty persons, (among whom were a number of Quakers) had the jerks. He adds:—

"I have seen all denominations of religion exercised by the jerks, gentleman and lady, black and white, young and old, without exception. I passed a meeting house, where I observed the undergrowth had been cut away for a camp meeting, and from fifty to a hundred saplings were left, breast-high, on purpose for the people, who were jerked, to hold by. I observed where they had held on, they had kicked up the earth as a horse stamping flies. A Presbyterian minister told me, while he was preaching the day before, some had the jerks. I believe it does not affect those naturalists, who wish to try to get it to philosophize upon it;—and rarely those who are the most pious; but the luke-warm, lazy professor, is subject to it. The wicked fear it and are subject to it, but the persecutors are more subject to it than any; and they sometimes have cursed and swore, and damned it, while jerking."

It is a fact, not generally thought of perhaps, that the *Quakers*, at first received this name from the circumstance of their being convulsed with these or similar affections of the nervous system. And they have prevailed more or less, among the Methodists, Baptists, Cumberland

Presbyterians, and other sects; and the authenticated facts upon record, of this kind, would fill a large volume.

It is true, many pious people attribute these occurrences to the powerful influence of the Holy Spirit.—That many persons affected in these ways, are pious, sincere christians, there can be no doubt. But a knowledge of the nervous system, and the nature of the human mind, would leave us little doubt, that these things may be rationally accounted for in some other way.

We have often seen persons "lose their strength," as it is called, at camp-meetings, and other places of great religious excitement; and not pious people alone, but those also, who were not professors of religion. In the spring of 1824, while performing pastoral labor, in Dennis, Mass., we saw more than twenty men, affected in this way. Two young men of the name of Crowel came one day to a prayer meeting. They were quite indifferent.—We conversed with them freely, but they showed no signs of penitence. From the meeting they went to their (shoemaker's) shop to finish some work, before going to the meeting in the evening. On seating themselves, they were both struck prrfectly stiff, as if paralyzed by a stroke of palsy. We were immediately sent for, and found them sitting, paralyzed, on their benches, with their work in their hands, unable to get up, or to move at all! We have seen scores of persons affected in the same way.—From ten to twelve years ago, the papers gave an account of a young lady in Philadelphia, who remained in a similar state some eight or nine days, and it is said her face shone with a peculiar brightness. We have seen persons lie in this state, for forty-eight hours. At such times they were unable to converse, and sometimes unconscious of what was passing around them. At the same time, they say they are in a happy state of mind.

We have thrown numbers of persons into what is called the magnetic sleep, and as far as we have been able to determine, there is a most striking similarity, between this state and that into which the nervous system seems to be thrown, when persons are said to "lose their strength," under great religious excitement. As for instance, we have seen scores of persons so affected by religious excitement, that the entire body became as rigid as if it were frozen. The principal difference in these two states seem to be, in the personal agencies by which they are induced. In the former, it comes to pass, by the influence of the imagination over the person's own nervous system; in the the latter, it is produced by the WILL of another.

In our next, we shall give some facts, tending to demonstrate the polarity of this magnetic nature; or that in some respects, it is governed by laws similar to those which regulate the natural magnetic forces.

HUMAN MAGNETISM.—Directions for its Application to the Cure of Disease, by La Roy Sunderland, New York, Phreno Magnetic office, 138 Fulton street, 1842.

This is a small pamphlet of 36 18mo. pages, containing full directions for the application of magnetism to the cure of disease. We have had frequent applications for a work of this kind, and are certain that this will be found sufficient for all ordinary purposes. 50 cents per dozen, $3 per hundred.

PHRENOLOGY.

MENTAL ORGANS.

From the first, we have had it in contemplation to give a list of the mental organs, the existence of which have been demonstrated, or rendered highly probable by our magnetic experiments, and we have been urged to this, also, by the request of numerous patrons, often repeated.

In giving the following, we must state:—

1. That all the light which our experiments and examinations have shed upon the subject of phrenology, has not led us to think of altering one of the land-marks laid down by the immortal Gall; indeed, all the results, at which we have arrived, have most wonderfully confirmed the discoveries and positions assumed by that distinguished man with regard to those organs, the locations of which, were definitively fixed by him. It is true, we think we have found a much larger number of specific organs, than Dr. Gall ever seems to have imagined the existence of, but he was before all others in marking the portion of the brain where the family, (if we may so speak,) was to be found. As, for instance, where he located one organ, we have found a cluster of the same class, or family. In that portion of the brain which he appropriated to Love of Approbation, for instance, we find one for the WILL, one giving a sense of dignity of character, one giving a sense of *modesty*, another giving a sense of ridicule, another for vanity, giving a desire for *display*, &c. And in the region which he called Ideality, we have found a larger number still; indeed, we are inclined to believe there are as many as twenty distinct organs in the portions hitherto appropriated to Ideality and Sublimity; but they seem to be only so many members of the family which was discovered long ago, by Dr. Gall.

2. We are not able to speak so confidently of some of the new organs in this list as we could desire. The new organs we have put in italic, and though we have demonstrated the existence of most of them beyond all reasonable doubt, in our own mind, yet, there are a few which we are only prepared to mention as highly probable, as we have not had opportunity for making a sufficient number of examinations to authorize our putting them down as certain. We have found them in a few subjects, in which we have been able to excite them, and we shall wait for further light before we come to a final conclusion as to the location and the precise nature of their functions.

3. We have not yet classified the organs to suit our views of their real functions. The following division of them into families is not satisfactory, but it is the best we have been able to do amidst our numerous professional duties, hitherto.

4. We have, from the beginning, felt considerable embarrassment, for the want of suitable names for the different organs. We never did like some of the old names, and we have by no means found it an easy matter to select or originate a suitable name, for many of the new organs which we think we have more recently discovered. And in giving the following list, we would not by any means, wish to identify any portion of the brain with the names or terms here used, so as to prevent the use of more appropriate ones, should they hereafter, be suggested.

5. We would respectfully suggest, to others who have made this subject their study, whether it would not subserve the cause of science, if they, also, were to publish the results of their own observations. Let us compare notes, and when we shall have received sufficient light upon the location and functions of the new organs, we shall furnish our readers with a plate which will enable them to designate those portions of the brain where they are to be found.

I. LIFE—ITS COMFORTS AND PRESERVATION.

Vitativeness.—Giving a desire to live; and also, the power of living against disease.

Dread of Death.—Fear of dying; unwillingness to go through the struggle of death.

Desire for food.

Thirst.

Smell.

Taste.—The power of distinguishing flavors.

Acquativeness.—Desire for the use of water, as in washing and swimming.

Desire for Money.

Destructiveness.

Acquisitiveness.

Grief.

Anger.

Ravenousness.

Desire to Hoard up Treasures.

Desire for Protection.

Fear of Bodily Pain.

Caution.

Discontent.

Inquisitiveness.

Desire for Precious things.

Love of Stimulants.

II. OUR CONDUCT TOWARDS OTHERS.

Suavity.

Praise.

Censure.

Deception.

Disguise.

Secretiveness.

Cunning.

Courage.

Boasting.

Aversion.

Retribution.

Covetousness.

Contradiction.

Veneration.

Watchfulness.

Jealousy.

Combativeness.

Suspicion.

Sarcasm.

Hatred.

III. AFFECTION AND ATTACHMENT.

Amativeness.

Connubial Love.

Filial Love.

Parental Love.

Love of Pets.

Love of Gifts—Keepsakes.

Adhesiveness.

Love of Enemies.

Forgiveness.

Inhabitiveness.

Love of Country.

IV. SELF GVERNMENT.

The Will.

Self Esteem.

Self Confidence.

Dignity.

Ambition.

Desire of Display.

Dread of Ridicule.

Vanity.

Modesty.

Love of Praise.

Concentration—*Recent*—Power of confining the attention to recent events.

Concentration—*Ancient*—Power of confining the mind on the contemplation of events long since passed.

Firmness.

Perseverance.

Sense of Responsibility.

Industry.

V. INTELLIGENCE, SCIENCE, KNOWLEDGE OF MEN AND THINGS.

Language.

Comprehension.

Number.

Mathematics—Calculation.

Order.

System—Method.

Conservativeness.

Melody—Tune.

Harmony. The power of combining and judging of the harmony of simple sounds.

Individuality.

Things—their identity.

Names.

Form.

Size.

Weight.

Color.

Light and Shade.

Eventuality—Recent.

Ancient Eventuality.

Simple Comparison.

Comparison of Ideas.

Perception of Motive.

Prevision.

Generalization.

Analysis.

Recent Causality.

Remote Causality.

Locality.—Sense of the direction of one place from another.

Desire for seeing *Ancient places.*

New Places.

Time.

Invention.

Constructiveness.

Sublimity and Ideality. In the portions of the brain where these organs have been marked, there seems to be

a large number, such, for instance, as give a taste for seeing—

Architecture, Waterfalls, Statuary, Volcanoes, Caverns, the Heavens, the Earth, Animals, Birds, Insects, Storms, Battles, the Ocean, Fruits, Flowers, Meteors, Landscapes, Pyramids, &c.

Imitation.
Antiquities.
Perfection.

VI. INTELLECTUAL HAPPINESS.

Beautiful.
Contentment.
Cheerfulness.
Joy.
Mirthfulness.
Playfulness.
Fiction.
Curiosity.
Hope.
Confidence.
Wit.

VII. RELIGION.

Conscientiousness. Justice.
Worship—Adoration.
Obedience.
Gratitude.
Pity—Compassion.
Benevolence.
Faith.
Spirituality.
Compassion.
Marvellousness—Wonder.
Belief.
Fear of God.

In addition to the above, we have found, that by exciting other portions of the brain, we produce the feeling of *infancy* and *childhood*; and also *insanity* and *madness*.

It is difficult, however, to tell with precision, the shades of difference between the manifestations of different portions of the brain, but we have seen enough to convince us, beyond all doubt, that there is much yet to be known as to the number and real functions of many other portions of that important organ.

THE NERVOUS INFLUENCE.

We must beg the reader to bear in mind, as we have before stated, that we do not agree, in all respects, with the views set forth in the work from which these extracts are taken. Nevertheless, there appears to be in it so much that is evidently true, that we feel fully justified in continuing our quotations.

INFLUENCE OF MATTER IN THE MENTAL OPERATIONS.

The material part of our nature is, in my belief, more deeply concerned in the operations of the mind than is generally supposed. As far as I can discern, its influence is extensive and important, and even indispensable to the performance of the mental functions, at least during our present mode of existence. Its nature and degree are therefore subjects worth the closest investigation, as some further insight into the philosophy of the human mind might possibly be obtained, by tracing its phenomena *through* those of the material part, instead of considering its powers, independently of any material action.

APPARENT NECESSITY OF TWO PRINCIPLES.

An attentive examination of the phenomena of my own mind, has led me to conclude, that the action of two principles is required in all its operations.—One, dignified in its nature, unknown in its essence, characterized by the three general powers of *feeling*, *willing*, and *understanding:* the other subservient to the former, constituting the materials upon which it acts, and the tools by which it operates, and possessing at the same time the capability of acting upon and influencing it to a certain degree.

MUTUAL DEPENDENCE OF THE TWO PRINCIPLES—DEPENDENCE OF SPIRIT UPON MATTER.

The two principles are therefore dependent upon each other, in certain respects.

The present dependence of the immaterial principle of man upon matter, is made evident by the phenomena which the human constitution exhibits, and chiefly by the total cessation of the mental operations when the functions of its material organs are interrupted, as in syncope, and in every case of suspended animation. If a single act of the intelligent power could be performed during this state, we might infer that it was, so far at least, independent of matter, but even its consciousness of existence is lost, and though the soul still continues to exist, it is incapable of operating, as a workman necessarily remains inactive when he is destitute both of tools and materials. Thus we cease to see when we are left in darkness, not because the faculty of seeing is destroyed, but because the means by which we use it are wanting. This fact does not therefore afford any reason for supposing that the immaterial principle remains *extinct* when the functions of the brain are permanently arrested in death; for the possibility of an *unconscious* existence in certain circumstances is proved by its taking place during life.

DEPENDENCE OF MATTER UPON SPIRIT.

The entire and necessary dependence of matter upon spirit, is made evident by the inertness (among other reasons) which is one of its characteristic properties, for as it can neither commence nor direct its own motion, it must owe the capability of executing *any* operation to a will that can impel it, and an intelligence that can direct it.

LIMITS OF OUR SPIRITUAL POWERS OVER MATTER.

The power which has been granted to our immaterial principle over matter, is, however, partial and limited, for we are incapable of giving existence, powers or properties to a single atom. Our influence is confined to the production of *change* and *motion* in surrounding matter (in this I include, not only the excitation and direction of mechanical and muscular motion, but the excitation of the mind's material agent—that is, the brain—to the performance of the mental operations): but however narrow may be its sphere of action, our immaterial principle displays the attributes of a *spiritual nature*, viz. a will to *impel* and *call forth*, and an intelligence to *direct* both mental and material operations.

MATERIAL ORGAN OF THE MIND.

It appears that the material agent upon which the mind *directly* operates, is the brain, or rather (in my opinion) a subtile and mobile fluid, of an electric nature, of which the brain and nerves are the conductors. But this hypothesis, as I have before mentioned, is independent of any other which I may por-

pose in the course of the Essay. It is only my intention to trace the *effects* of the nervous influence upon the mind, taking it for granted that it exists, without refering to its nature, further than that I believe it to be material. All of which we can be certain is, that it consists of some action which takes place in the brain and nerves, and that when their functions are interrupted, our spiritual part loses the capability of communicating with the external world, being unable either to produce motion or receive an impression.

MYSTERIOUS NATURE OF THE NERVOUS INFLUENCE.

I am inclined to think, that the means by which these operations are performed, may perhaps be within the reach of our knowledge, and be developed when the sciences of anatomy, physiology and chemistry, shall have arrived at a greater degree of perfection—but with respect to the *direct* action of the immaterial principle upon matter, i. e. upon the nervous fluid or whatever it may be, I have no doubt that it will remain unknown as long as our faculties are restricted within their present limits. Perhaps indeed there may be no secret to discover in this ultimate operation, and the fact may be simply, that when the will decides, it is so *ordained*, that the matter allotted to its purposes should move in consequence: by which matter, I must not be understood to mean the *muscles*, but a more direct and immediate agent of the mind which acts *upon* the muscles, viz. the nervous fluid.

LIMITS OF THE CEREBRAL AND INTELLECTUAL ACTIONS.

I shall now endeavor to trace the respective limits of the cerebral and intellectual actions, first observing, that no phrase which I use is to be construed into an assertion, and that this chapter contains merely a statement of what *appears* to me to take place in the mind.

The share which the material principle takes in the mental operations, is to produce *impressions* upon the immaterial principle, and to *obey its impulse and direction.*

The part of the immaterial principle is to *feel* the impressions made by the means of the *sentient power*, to *perceive* and to *judge* of their nature and relations by means of the powers of the *understanding*, and to produce *impressions* upon matter by the power of the *will.* The immaterial principle therefore is both active and passive, for it both receives and produces impressions.

The action of the two principles will be next considered under two distinct heads, though it is not possible to separate them *entirely*, as neither can operate without the assistance of the other. The first section will treat of the *material or nervous power;* the second, of the powers of the immaterial principle. Under the first head I shall place the physical sensations, the ideas, the moral sensations or feelings of the mind, and volition, by which I mean the executive power of the will: under the second, the perceptive faculty, the judgment, the imagination, and the will.

OF THE NERVOUS ACTION.

The part of the nervous system under present consideration consists exclusively of the nervous system of the animal life, that is, of the brain, and the cerebral and spinal nerves.

FOUR NERVOUS ACTIONS.

There are, it appears to me, four different nervous actions concerned in the operations of the mind; two which take place from the nerves to the brain; one is confined to the brain alone, and one takes place from the brain to the nerves. The two which take place from the nerves to the brain act *upon* the mind, and produce the physical and the moral sensations. The one which is confined to the brain cooperates with the mind, and contributes to the formation of the ideas; the one which takes place from the brain to the nerves conveys the mandates of the will *from* the mind to the muscles of voluntary motion, and produces an act of volition. These nervous actions are excited, some by external matter; some by the immaterial principle; and some by either; and they all form concatenations with each other, which enable them to follow one another spontaneously, if not disturbed by a new impulse from the will, or from external matter. In viewing them separately, I shall first notice the physical sensations, which must, I should suppose, from the nature of the understanding, precede every other mental operation, at least during the first development of the mind.

THE PHYSICAL SENSATIONS.

The material principle has, as I have before observed, the power of operating upon our immaterial part. The capability of the latter to *feel*, or to be sensible of the action of the former, is called the sentient power. The effect produced by matter on the immaterial principle is called a sensation.

SENSATION.

It seems that an action of an unknown nature is excited in the nerves of the organs of sense, by the various undulations of the air, by the rays of light in all their different colours, and reflected by material objects at different angles, by the subtile particles emanating from odorous substances, and by the more intimate properties of bodies that have the power of affecting the organs of taste and feeling; and that this action of the nerves is communicated to the brain, and from thence to the mind, in which it produces a *sensation*—which may be painful, pleasing, or indifferent. This constitutes the first and lowest order of functions belonging to the nervous system of the animal life. When an act of the perceptive faculties is combined with a sensation, it constitutes, as I should suppose, a perception, which being the first operation of the understanding, will be presently considered. The next mental operation consists in the formation of ideas.

FORMATION OF IDEAS.

An idea appears to me to be formed by the combination of an intellectual and cerebral action. The ideas are excited by the physical sensations, by the will, and by *other* ideas. They succeed each other in the mind incessantly (at least during our waking hours), and spontaneously; but their course can be altered by new sensations, directed by the will, and is at all times more or less regulated by the tendency of ideas to form *associations.*

ASSOCIATION.

Two or more ideas may become concatenated, so that when one is excited, the other shall naturally follow; and these concatenated ideas may be associated with moral or physical sensations, or muscular actions; so that the sensations will be always followed by the particular ideas, and the ideas will, in like manner, be followed by moral sensations, or by actions of the muscles.

I would refer the phenomena of association entirely to *the nervous action* concerned in the ideas, sensations, and acts of volition; for I am inclined to think that the *mechanical* part of all the mental operations

is carried on by the *material*, not the *spiritual* agency—the first being known to act mechanically; while such a mode of operation seems repugnant to the nature of the latter, as far as we can form any notion of it. The analogy which exists between the regular succession of muscular actions, when they occur mechanically in the order in which they have been excited, and the regular succession of ideas, gives me reason to suppose that both are regulated by the same laws which connect nervous actions. We find that "if a train or succession of nervous actions takes place, they become concatenated, and are liable to recur in succession, if one of these actions is accidentally or voluntarily induced." Now, as the cerebral action is concerned both in the mental and the muscular phenomena, it may not be irrational to suppose that a concatenation of nervous actions takes place in one case as well as in the other. Upon this subject I will hazard a conjecture, which I have formed, under the supposition that the nervous action consists in the operation of a nervous fluid: it is, that when this fluid has been impelled by the will, or by any other exciting cause, in a particular direction, it retraces the same course with more readiness and facility.

HABIT.

To this we might attribute the power of *habit* in the muscles of the animal life, and perhaps the regularity of action in the muscles of the organic life. In both cases we find that a *disordered* nervous action becomes a regular habit in the course of time.

The concatenation of our ideas is formed independently of the will; but this faculty may be exerted, in order to produce voluntary associations; it can form them by directing the attention to two or more objects alternately and repeatedly; but I doubt whether it can ever break the link when once it is formed. The gradual operation of time alone can effect this, by causing forgetfulness; the nervous actions grow weaker in time, if not occasionally re-excited, and the union is then frequently dissolved;—or it may be suddenly broken by the interposition of more powerful nervous actions, particularly those produced by a morbid state of the brain; and we find that in insanity, many old associations are destroyed, and new ones are formed. Inflammation of the brain, fever, fits, and comatose diseases, also destroy former associations of ideas, by disordering the nervous action. If they *weaken* the cerebral action, the power by which they unite with so much tenacity is diminished or lost; the ideas themselves lose the force and vividness with which they were presented, and the *memory* is then said to be injured. To this faculty I will now direct my attention.

THE MEMORY—DEFINITION.

It is to the power which the brain possesses of repeating and concatenating its actions, that we owe the faculty of the memory, which in my opinion, is not a faculty of the immaterial principle, but results entirely from this capability in the material organ. If we consider the nature of this operation, we shall find that it consists in the repetition of former cerebral actions, in the same order in which they have been excited—a repetition which *can* take place spontaneously, and without the assistance of the will, or of any other mental power, except the perceptive faculty. What appears to be an exertion of the faculty of the memory, is an act of the *will*, which excites and directs the cerebral action, and calls forth particular trains of ideas. The will, directed by the judgement, and combined with the cerebral action, is therefore sufficient for the purpose, without supposing the existence of any distinct mental faculty. Indeed, the memory seems to me to be more mechanical than voluntary; for we are often unable to remember what we wish, while we are compelled to remember what we do *not* wish. When we would recal an idea, or train of ideas, we are obliged to employ indirect means, such as seeking some sensible object, or calling forth some other idea, with which the one required is associated. But the will may be exerted very successfully in securing future recollections, by giving force and vividness to an impression which we wish to recal at a future period. This can be done by directing the attention to it exclusively; and by associating it with ideas which are more likely to present themselves spontaneously.

NERVOUS ACTION CONCERNED IN THE IMAGINATION.

Before I quit this part of the subject I must notice the capability of the brain to form *new* combinations, and repeat former impressions in a different order from that in which they have been received, which appears to me to be the material means by which the imagination operates.

The new arrangement of the ideas may be produced by the will, and by the moral and physical sensations, as all these have the power of exciting the cerebral action concerned in the formation of the ideas. The operations of the imagination are more or less regular, according to the causes which excite and direct them. In invention, they are directed by the will and the judgement, and the memory has a considerable share in the operation. Their greatest wildness and irregularity is exhibited in the phenomena of dreaming, and in delirium, when new associations are formed entirely independent of the judgement and of the will; and in this case, they seem to be excited exclusively by the moral sensations and to be considerably influenced by the state of the nervous system. If the connexion between the moral sensations and the nervous actions were traced, some light might possibly be thrown upon the subject.

This connection will be the next subject of consideration, and I shall now offer an hypothesis which I have formed respecting the share taken by the nervous action in the feelings of the mind.

THE MORAL SENSATIONS.

The third nervous action takes place, in my opinion, from certain internal nerves *to* the brain, and forms the material action concerned in the production of the moral sensations or feelings of the mind. My reasons for this opinion will be presently detailed.

The sensations which I call *moral*, to distinguish them from the physical sensations, include all the feelings, emotions, and passions of which the human mind is susceptible.

DEFINITION OF MORAL SENSATIONS.

I should define a feeling of the mind to be a *sensation* of a peculiar kind, associated with an idea, or a train of ideas. Upon considering their nature, I cannot doubt that they are sensations, i. e. nervous actions, felt by means of the sentient power, but of a different kind from those produced through the medium of the external organs of sense, and excited by a different cause, that is, by the ideas, instead of by external matter. The moral sensations are in some cases naturally associated with the ideas which excite them, and in others the association is formed by circumstances: these sensations excite in their turn other ideas, belonging both to the memory, and the imagination. The imagination appears to me to be most powerfully excited through this medium.

SEAT OF THE MORAL SENSATIONS.

The distinctness with which I can trace the action of the moral sensations to the region of the chest, convinces me that it is not confined to the brain, but that it is intimately connected with certain internal organs. In this opinion I have been confirmed by every observation which I have made upon the phenomena which the mental feelings exhibit. I will now explain my notions respecting the *part* of the nervous system to which I think this action may be referred. We cannot of course refer it to the nerves of the external senses; still less to those of voluntary motion; neither is it probable that the nerves derived from the ganglia & the spine, by which the vital functions are carrried on, should convey the moral sensations to the brain. I would therefore place them in the *cerebral nerves* which descend to the vital organs, and which thus appear to connect the animal and the organic life. Might they not result from the excitation of the *eighth pair of nerves*, or *par vagum*, which, in its long and irregular course, traverses the lungs, and gives off branches to the heart? The action of some nerves in the chest is so evident, in this class of operations, that the feelings have been referred to the heart by common opinion from time immemorial. The branches of cerebral nerves which the heart receives do not appear to be intended for the purpose of producing muscular motion, as the contractions of this organ are carried on independently of the brain: we may therefore suppose that they are intended to answer some other purpose. The par vagum sends branches to the larynx, and it also adheres firmly to the lingual nerves for some way after leaving the brain, which may possibly account for the rapid and direct influence of the mental feelings upon the voice. This great nerve continues its course through the stomach and liver; but so far from presenting an objection to the hypothesis, it accounts, in my opinion, for the effect which complaints of these organs have upon the mind, and also for the manner in which they are affected *by* the mind.

FEBRILE ANXIETY.

There is a peculiar sensation attending that derangement of the animal frame, which produces fever, that seems to favor my hypothesis, and which is thus described:—"The sense of weight, fulness, and great uneasiness at the breast, which is denominated *febrile anxiety*, is totally different from, and independent of, the general uneasiness all over the body, and often occurs in a very disproportionate degree: it resembles that anxiety which takes place from grief, fear, and other depressing passions of the mind, and which is also accompanied by paleness, and diminution of size of the veins, which are seen on the surface. The patient likewise respires irregularly, as one under the influence of the passions just noticed, and frequently sighs deeply, as if to free himself from the load that oppresses the region of the heart." Hence it appears that certain disturbances in the physical and mental parts of our nature produce the same *sensation* in the same region, which is the breast, and the sense of anxiety, so remarkable in fever, may probably be attributed to this cause, viz. that the action of the nerves to which I refer the mental feelings, is deranged, owing to the feverish state of the whole system. As these particular nerves partake of the general derangement, the peculiar sensation, *without* the associated idea, is excited; the *physical* part of the operation only takes place, and we experience the pain without the corresponding mental cause. But even when this painful nervous action has been roused by an idea, and constitutes a feeling of the mind, we must have frequently observed that it remains a mere *sensation*, when the thoughts are turned to objects that have no connexion with our grief.

SEAT OF THE MORAL SENSATIONS.

It must not be supposed that I consider the heart, or any other organ, as the seat of the moral sensations. I believe that sensation is produced in the *mind* by the action of the brain, and that, consequently, the mind is the seat of sensation, and the action of the brain its immediate cause. Neither do I attribute the excitement of the brain in the production of the mental sensations to the action of the heart, lungs, stomach, or liver, but to the excitation of certain nerves, connected with all these organs. I have drawn this conclusion: first from their situation; secondly, from the observations I have made upon my own internal sensations; thirdly, from the peculiar effect produced by affections of these organs upon the mind.

SITUATION OF THE EIGHTH PAIR OF NERVES.

First, with respect to their situation—as one part of the nervous system is allotted to the mental, and another to the vital functions, it seems not improbable that the eighth pair of nerves, which originates in the brain like the former, and passes into the internal organs like the latter, should connect the mental and bodily as well as the animal and organic functions; secondly, the observation of my own sensations naturally leads me to refer the mental feeling to the region of the heart and lungs; we cannot, it is true, trace the nervous action farther; but perhaps it becomes less evident to ourselves as it recedes from the brain, in the same manner that the sense of taste, which is distinct at the œsophagus, grows fainter in proportion to its distance from the brain, until the action of its nerves becomes imperceptible to the mind; thirdly, the effect of the mental feelings upon the internal organs, and of these upon the mind, is a subject which requires longer discussion. It is very evident that the influence of the mental affections upon the bodily health is very considerable, and it also is a fact, that the organs traversed or connected with the eighth pair of nerves are those which suffer from this influence. Diseases of the heart, consumption of the lungs, dyspepsia, and bilious complaints, are caused by too strong, or long-continued excitement of the mental feelings. The heart is less liable to disease than the lungs, stomach, or liver, in this case, and the stomach is the most susceptible of all, and is in general the first affected. Now it is to be remarked, that the heart only receives a *branch* of the par vagum; while the trunk of the nerve traverses the stomach, forms its means of communication with the brain, and has a share in the operation of digestion. This may account for the effect of strong emotions, which is sometimes so powerful as to arrest the digestion suddenly, and also for the general diminution of the digestive powers, in consequence of affliction or anxiety—a diminution which I would attribute to the exhaustion following the over-excitement of the nerves passing from the stomach. The liver lies more remote, and is affected in a more indirect manner: the depressing passions produce *chronic affections* of the liver, and, we may observe, that they are *preceded* by a disordered state of the stomach.

RECIPROCAL INFLUENCE OF THE MIND AND THE DIGESTIVE ORGANS.

If the digestive functions are affected by the state of the mind, they exercise in return an influence as powerful over our immaterial part, and whether their derangement proceeds from mental or physical causes, it equally impedes the due performance of the

mental operations: perhaps the above mentioned nerves, which communicate directly with the brain, affect the cerebral action concerned in the formation of the ideas. Common experience shews that a disturbed state of the stomach confuses the ideas and thus incapacitates the mind from using its powers; it also influences the feelings and disturbs the imagination, producing anxiety, timidity, melancholy, and irascibility.—Now this can be easily accounted for, by supposing that the nerves concerned in the production of the mental feelings, and in the excitation of the ideas associated with them, were in a morbid state of irritation.

REMARKABLE CHRONIC DISEASE.

Before I leave this subject, I will notice a chronic disease which strongly displays the influence of the internal organs upon the feelings.

This disease, which attacks the viscera successively, has no distinct place in the nosology, and is treated as a derangement of whatever particular organ is principally affected. But from the observations which I have had the opportunity of making upon its origin and progress for years, I have been led to conclude, that it *is* a distinct disease, which has its seat not in the organs themselves, nor yet in the general nervous system; but in that particular division of it which immediately connects the mental and corporeal functions.—In short, that it consists of a disordered action of the eighth pair of nerves, which consequently affects all the organs connected with it. The characteristics of this malady are, first, its course and progress, which distinguish it from a mere stomach or liver complaint, and give it the appearance of a *succession* of complaints. It first shews itself in the lungs, affects the heart in various ways, afterwards descends to the stomach, and from thence to the liver and the upper part of the intestines, following the same course, it will be observed, as the eighth pair of nerves. Secondly, it is made remarkable by its potent effect upon the feelings, producing irrascibility, agitation, occasional melancholy, anxiety, arousing passions which do not always belong to the character, while the excitation which they give to the cerebral action, fills the imagination with horrible and painful ideas, causes frightful dreams and nightmare, and produces an apprehension of insanity.

Slighter cases are only marked by depression of spirits and irritability of temper: the malady exhibits its most decided character in individuals of an ardent temperament and *deep* as well as strong feelings, and appears to have its origin in the disturbance of these feelings, and in a too violent excitation of the cerebral action. The third distinguishing characteristic of the complaint is, that it does not yield to medical treatment like any other affection of the digestive organs, but clings to the constitution till it has spent its fury.—The reason of this is obvious, if it is caused by a disordered nervous action, for in the first place the cause is not *removeable:* when stomach and liver complaints are produced by a bad climate, intemperance, etc., much may be done by the exertions of medical skill, but here it seems capable only of relieving symptoms. In the second place, the treatment of nervous diseases is not so well understood as common obstruction or inflammation, and even if it were, this malady would have little chance of amendment if it is nervous, because it is never treated as such. It may indeed appear strange to ascribe a vitiated state of the secretions to a nervous cause, but since the action of the nerves is necessary to the operation of secretion, bilious and nervous causes cannot be so totally distinct as they appear at first sight. I might mention a fourth symptom, which indeed seems to be an attendant of *every* nervous disease, but never in a manner so distressing.—This is an extreme susceptibility to atmospheric changes, especially with respect to its dryness or humidity, and also to the wind. The influence of weather in this case is so powerful as to produce attacks of the complaint without any other apparent cause. The nerves do not appear to be so much affected by the actual humidity of the atmosphere, as by the electrical state which precedes the *change*, and we find that a nervous barometer of this kind can frequently foretell an alteration in the weather, before the clouds make their appearance. It is my opinion that the hypochondriasis is a disease of the eighth pair of nerves, originating like the former in over-excitement, mental or bodily. But it differs from it in this respect—hypochondriasis exhibits loss of energy, *habitual* melancholy, and sluggishness of the vital functions, the other disease shews an *increase* of excitability in the organs of digestion, a morbid state of the secretions rather than a deficiency, and an inflammatory tendency in the liver or lungs. In my apprehension the same cause that produces hypochondriasis in persons of a phlegmatic temperament, when they have lost the vigor of youth, induces the complaint above described in individuals of an ardent mind, an inflammatory habit, and in the prime of life. The notion that hypochondriasis is merely a disease of the imagination must now be quite obsolete; for whoever has been troubled with nervous affections (and to whom are they not unknown?) must acknowledge that the sufferings arising from a disordered state of the nerves that belong to the digestive organs are but too real, and not the less so because the mind is affected also. In this case the body and the mind react upon each other; the despondency, fear of death, suspiciousness of disposition, and pertinacity in magnifying unpleasant sensations, affect the functions of life; while the derangement of the latter, in return, depresses the spirits and enfeebles the mind.

The last observation that I shall make on the malady above mentioned is, that I have sometimes seen it alter its direction, after having run some part of its course, but it always preserves its characteristic effect upon the spirits, though in a less distressing manner, and it remains involved in the same obscurity, baffling every endeavor to eradicate it from the constitution. In one case, after having traced its progress through the lungs, stomach and liver, I have seen it expend its irritating influence externally on the muscles and skin, in inflammatory affections for which the sympathy between the stomach and the skin may possibly account. Upon the whole, when I consider the singular phenomena exhibited by this disease, the mysteriousness of its origin, the tenacity of its adherence, the peculiarity of its course, the degree of its dependence upon atmospheric changes, and the tyranny of its influence over the mind, I am strongly inclined to believe that it is of a nervous character.

OFFICE OF THE MORAL SENSATIONS.

The moral sensations constitute the *motives* of our actions, that is, they move or incline the mind to the performance of particular action, but of this more will be said in the section on the will.

VOLITION.—DEFINITION.

The fourth nervous action takes place from the brain to the nerves, and it is excited by volition, which I define to be the power which the immaterial principle *exercises* over matter, and over mind through the medium of matter, i. e. the brain.

I distinguish it from the *will*, which I consider as

a *state* of the mind, to which it is led by the ideas, and moral sensations, while volition is an active faculty which calls into action the material organs allotted to the purposes of the mind. Volition excites the brain to the production of ideas, and through this organ the nerves to the production of muscular motion, (including the important movements of the tongue) by which means we are enabled to cause changes in surrounding matter as far as our power extends. Volition is the active power of the will; but as the capability of the will to *use* this power, depends upon the capability of the material organs to obey it, and other circumstances, the state of mind we call *willing* is not always followed by the corresponding act of volition.

MODE OF THE OPERATION OF VOLITION IN THE PRODUCTION OF MOTION.

Upon attentively examining the mode of the latter operation, it appears to me that the nerves of the voluntary muscles are not excited *directly* to the immaterial principle, but through the medium of the brain, and in the following manner. The imagination represents in idea the action we are about to perform, and if the power of volition is exerted, the cerebral action concerned in these ideas is followed by a corresponding *nervous* action, which takes place in the voluntary muscles.

CONCATENATION OF NERVOUS AND MUSCULAR ACTION.

By repeating certain nervous and muscular actions in succession, they become associated and follow each other mechanically, when they have received the first impulse from the power of volition.

OPERATION OF VOLITION IN THE EXCITATION OF IDEAS.

The power of volition also excites the cerebral action in the performance of the *mental operations*, and enables us to call forth particular ideas, or trains of ideas at pleasure. The concatenation of the *nervous* with the *cerebral* action, is made evident by the convulsive motions of the limbs, when the brain is excited by other causes than the will, as in fits of various kinds.

INFLUENCE OF PHYSICAL SENSATIONS OVER VOLITION.

The movements of the muscles which in man constitute the *fourth* nervous action, because the ideas and moral sensations are interposed between the physical sensations and the acts of volition, must, I suppose, form the *second* nervous action in those of the brute creation that have no brains, and it is probable that in this lowest class of animated beings, *motion* follows as a direct consequence of *physical sensation.* In brutes of a higher class, motion necessarily follows the *moral sensations*, i. e. *feelings*, but in man, the nervous action can be suspended to allow the exercise of the judgment, and other intellectual powers. Sensation has undoubtedly a certain share of influence over our actions, but this is neither irresistible nor even *direct*, for the operations of the understanding are, or ought to be, exercised between the impressions made upon us by matter and those which we in return make upon material objects.—It was not intended that we should move like machines, under the influence of sensation, but that the faculties which are granted, to enable us to direct our motions to rational purposes, should first be exerted. We even have the power of acting *against* the influence of sensation, and nothing proves to me more clearly the existence of a principle differing from and superior to matter, than the capability which I feel internally, of exciting and directing one material operation in direct opposition to the influence of another.

FOUR NERVOUS ACTIONS—RECAPITULATION.

From the above it will appear, that I believe the nervous actions to be of four kinds. The first is the action of the *nerves of the senses*; it receives its excitation from external matter, and conveys it to the brain, which it excites to the production of *physical sensations.* The second is an action of the *brain;* it receives its excitation either from the nervous action concerned in the physical or moral sensations, or from another cerebral action with which it is associated, or from the will; and it co-operates with the immaterial principle in the formation of *ideas.* The third consists, (in my opinion) in the action of certain *internal nerves*, which seem to connect the mental and corporeal parts of our nature; it receives its excitation from the cerebral action concerned in the formation of the ideas, and it excites other ideas in return; this constitutes the *moral sensations.* The fourth consists of the action of the nerves of *voluntary motion*; it is excited by the will; in this case the action commences in the brain and ends in the muscles of voluntary motion, and constitutes an act of volition. These four nervous actions form concatenations, in the order in which they have been enumerated.—The first proceeds from the exterior of the body to the brain. The second is confined to the brain alone. The third takes place from the brain to the internal nerves. The fourth proceeds from the brain to the exterior.

INTELLECTUAL OPERATIONS.

The office of the material organs which are allotted to the purposes of our spiritual part, formed the subject of enquiry in the last section; the powers of the principle which *employs* these agents, will be the next object of consideration.

ATTRIBUTES AND NATURAL POWERS OF THE IMMATERIAL PRINCIPLE.

The most deep and fixed attention that can be bestowed upon the phenomena of the mind, will not enable us to discover its essence, or constituent substance; we can only perceive that it possesses and exercises certain faculties which distinguish it from every other principle with which we are acquainted. We can be clearly conscious that we *feel* the impressions made upon us by matter, that we can *perceive* or be sensible, of the existence, properties, and relations of the things which makes these impressions upon us; and that we can, to a certain degree, *voluntarily direct* our material and mental operations. These which we call the sentient power, the understanding and the will, appear to me to be the inherent powers of the soul, and its distinguishing attributes; not acquired, but forming as it were, a part of its nature, and distinguishing it distinctly from matter, which in every situation within our knowledge, shews that it does *not* possess them.

ACQUIRED POWERS OF THE IMMATERIAL PRINCIPLE.

We feel, perceive, and act, as soon as our powers are called forth, but the capability of perceiving with *correctness*, and directing our *movements* with *certainty* and *precision*, is acquired. For this purpose we are enabled to perform certain mental operations; the cerebral action on the one hand, can be excited to the repetition of former impressions, and to the formation of new combinations, in the operations of memory and imagination; the immaterial principle on the other hand, can excite and direct the operations of the brain, combine and arrange these various materials, form others from them, and by means of its acquired knowledge and numerous ideas, become an enlightened rational agent; in this manner the memory and imagination supply the materials, and the judgment makes use of them.

The faculties which are most immediately connec-

ted with the material action, viz. the sensations, ideas and volition, have necessarily been included in the preceding section; those which remain are the intellectual powers, and the will, which will be treated under two separate heads.

POWERS OF THE INTELLECT.

The powers of the intellect are the highest attributes of the immaterial principle. They consist, I apprehend, of the perceptive faculty, the judgment, and the imagination; the reasoning power I do not consider as a separate faculty, as reasoning is only an extended operation of the judgment—it is a chain of judgments.

THE PERCEPTIVE FACULTY.

The perceptive faculty is the power by which we are made sensible that things possessing certain properties exist. It is the first intellectual power that is developed, and the one which derives most assistance from matter in its means of operation. Its objects are either material, in which case they are presented by the senses; or mental, when they are presented by the memory and the imagination.

PERCEPTION—SIMPLE, COMPLEX, AND ABSTRACT IDEAS.

The first *active* operation of the mind, is perception, which appears to me to take place in the following manner. The various properties of an object make their several impressions on the mind, through the medium of the organs of sense and the brain; this is *sensation*, and so far the mind only *feels* the impression made by the color, taste, etc., of an object, and is passive under the operation; but these various impressions are repeated by the brain, and become concatenated, and then present to the mind the idea or image of the object with all its properties combined, as far as they have been made known to us by means of the sensations; if one property alone is presented, as for example, light or darkness, it forms a *simple* idea; if several, as man or ship, it is a *complex* idea. By observing that different things possess the same properties, we form the idea of a property *or* a quality, *independently* of any one particular object, and this is an *abstract* idea.

LANGUAGE.

For this purpose we require the aid of language, which represents by signs, what cannot be represented by images, and thus enables us to perform the higher intellectual operations. I should suppose that the sensations, and the repetition of them by the cerebral action, form the foundation upon which the superstructure of all our other ideas is gradually raised by the operation of the mental faculties. If we were only susceptible of sensation, we should feel an impression without attaching any idea to it, no corresponding action of the brain being excited; this is probably the case with animals that have no brains, and consequently can only *feel*, and do not *perceive*.

ABSTRACTION.

The difference between sensation and perception is made evident when the mind is in a state of *abstraction*, that is, when it is occupied in perceiving the ideas presented by the memory and imagination, instead of those produced by surrounding objects.—In this case, the mind still receives the impression of light, color, etc., which external objects make upon it, because when we are awake, the channels of communication with external objects are not closed; but it is passive under these impressions, and attaches no ideas to them, because it is at that time employed in the perception of other objects.

THE JUDGMENT.

The judgment is more intellectual in its operation than the perceptive faculty, and is the power next developed in the mind.

DEFINITION OF THE JUDGMENT.

The faculty of perception makes us aware that things exist; but they not only *exist*, but *act* upon each other, by means of certain powers and properties, and *judgment* is the faculty by which we are made sensible, that the change which takes place in one object, has its cause in some property that resides in another. The means by which we are enabled to use this power with correctness, are experience and observation; these form the judgment, and gradually give us the capability of discerning causes and foreseeing effects with accuracy. We first perceive that certain objects always produce particular effects upon ourselves, and we attribute these effects, (i. e. sensations) to certain properties possessed by these objects. By observing that the same objects under similar circumstances, produce the same effects, we learn to foresee what effect will follow a particular *cause*, and to form conclusions respecting what cause must have produced a particular *effect*. The judgment decides respecting what *must* be, by what *has* been, and this recollection of what we have felt and observed, we call experience. The same causes must produce the same effects, under the same circumstances, and it is this certainty which enables the judgment to draw right conclusions; a correct knowledge of the *attendant circumstances*, is therefore as indispensable as a *precedent*, to guide the judgment, and our ignorance or error on this point is one of the numerous causes that mislead this faculty. As the judgment is formed by experience, its accuracy must be partly dependent upon the particular circumstances in which we have been placed; hence, while physical perception is nearly the same in all men, this faculty exhibits different degrees of power, even in minds possessing an equal degree of *natural* capability, because it not only varies according to the strength of the intellect to which it belongs, but also according to the means by which it has been developed.

THE REASONING FACULTY.

The capability of judging respecting *immediate* causes and effects is not sufficient for the execution of the mental operations. We are enabled, therefore, by the help of the memory, which presents facts and former judgments to the mind, to *trace a series* of causes and effects, and to form a chain, of which every link is a judgment. The power by which we find the connexion between *remote* causes and effects, is the reasoning faculty. We judge and reason at first from our own sensation; and, as the mind unfolds, we acquire abstract ideas, we judge and reason by analogy and induction. The more assistance we can derive from the physical sensations, the more certain is the operation of the judgment, whose liability to err increases in proportion to its dependence on the intellectual operations.*

DEFINITON OF THE IMAGINATION.

The imagination is, in my apprehension, the most intellectual and the last developed of the faculties.—I should define it to be the power which the imma-

* As far as the physical perceptions and the memory can guide, I should suppose that sagacious animals are capable of judging; but when abstract ideas, and the power of reasoning is required, I believe they cannot proceed, owing to the want both of mental power and language.

terial principle possesses of forming *new* combinations of ideas. The material means by which it operates consists in the capability of the brain to repeat the actions that have been excited in it in a different order, and to form associations under the influence of a *mental faculty*, instead of a real object.—As we are incapable of *creating* a new idea, and can only form new combinations of those which have been already produced by received impressions, the imaginative faculty can only operate with the assistance of the memory. The faculty of the memory must therefore be developed before the imagination; the ideas belonging to each department will always be intermingled, and the will belong to the one or the other, according to the reality of their object.—When we *invent*, the will and the judgment direct the imagination; when we give the reins to this faculty, the ideas succeed each other without any exertion of the will, and fanciful images, as well as recollections, flow spontaneously from the mind.

Like the ideas of the memory, those of the imagination may be excited either by present objects, by other ideas associated with them, or by the moral sensations. In dreaming, they appear to be excited exclusively by the latter. The action of the senses and the will being suspended, dreams are very much influenced by the state of the stomach, which confirms my opinion, that the nerves belonging to the digestive organs are connected with nerves concerned in the production of the moral sensations.

ENUMERATION OF THE MENTAL FACULTIES.

To conclude, the mental faculties may, I think, be enumerated in the following order:—Sensation, volition, perception, memory, judgment, imagination. We shall find that the lowest in the scale are the most material in their operation (with the exception of perception,) the first developed in infancy, and the most universally possessed by the animal creation, the lowest class of brutes possessing only the two first, and the number of faculties increasing according to the degree of perfection of the animal.—We may also observe that the inferior faculties can operate without the superior, while the latter cannot act without the former.

THE WILL—DEFINITION.

What we call the will appears to me to be a *state* of the mind; it is its *determination* to a particular course of action; while *volition* is the power of acting in *consequence* of such a determination. Every act of volition must therefore necessarily be preceded by this particular state of the mind.

The mind is brought into different states of belief and doubt, determination and inclination, by different kinds of ideas. As belief and doubt are produced by the ideas which constitute *reasons*, so determination and inclination are produced by the ideas which constitute *motives*.

The operations concerned in an act of the will are three:—the first is the representation of the ideas called motives—these throw the mind in a state of determination; the second consists of the ideas called *resolutions*, which *shew* this particular state of the mind, (and, in fact, the ideas are the only means by which its different states can be made known;) thirdly, the operations of the brain and nerves, which produce *mental action* or *muscular motion*;—these are the *consequences* of this state of the mind.

MOTIVES.

First, the ideas which give a determination of the mind towards one course of action rather than another, are not merely *ideas*, like the reasons which are brought before the understanding to produce the state of belief; they are ideas *associated with the moral sensations*, and, in order to constitute a motive, the idea *must* be combined with a *feeling* whether of liking or aversion, even if it be so slight as to be imperceptible to ourselves.*

INTELLECTUAL OPERATIONS.—RESOLUTIONS.

Secondly, the class of ideas, which denote the state of the mind produced by the motives, are called *resolutions*. These may be followed immediately or not, by the mental operation of muscular action to which they relate.

In examining this class of ideas attentively, I find that it consists in the execution of the intended act of the *imagination*. The act of volition which succeeds may, by repetition, become associated with these ideas, and follow them mechanically. In this case, the nervous actions concerned in the ideas and muscular motions become concatenated, and follow each other without a new act of volition. This must, I think, take place in somnambulism; for the will has certainly no influence whatever during sleep.†

Nevertheless, we have the power of arresting or changing these nervous actions at every point, and calling forth other motives. If, like many animals, we had but *one* motive, viz.—sensation, the action must irresistibly follow; but in the plurality of motives, and in the power of opposing immaterial to material impulses, the superior nature of man shews itself, and chiefly in the power of the imagination, which is sufficient to overbalance the present and immediate influence of sensation, by the representation of future advantage. It is by this means that the mere expectation of eternal happiness, or eternal misery, can overpower the wish of present gratification, and the fear of immediate suffering; that it can enable us to lose the perception of the present in the contemplation of the future; can check the full tide of passion, overcome the strongest resolutions, and arrest the execution of an evil action on the very point of its perpetration.

OBSERVATIONS.

I shall conclude this chapter by a few detached observations, which could not find admittance in a simple definition of the mental faculties, and I shall place them in the order that I have adopted in the enumeration of those faculties.

OBSERVATIONS RESPECTING THE FORMATION OF THE IDEAS.

The ideas according to my supposition, are *formed* by the joint action of the brain, and the mind; *excited* both by the will and the sensations; *associated* with the physical sensations, with each other, and with the moral sensations.

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* The ideas which produce conviction are not always perfectly free from these accompanying feelings, and will sometimes mingle with *reasons*, when we are drawing a conclusion, but their intrusion should be repressed; for as far as they have any influence, so far is the judgment liable to be biassed. Hence it is that a cool judgment will often decide more correctly than a stronger judgment that is under the influence of personal feelings, and that we sometimes judge better for others than for ourselves, because we can reason more dispassionately. When the powers of two individuals are equal, the cool temper will naturally have the advantage; and minds even of unequal power are brought more nearly to a level when passion shackles the one, while the faculties of the other are exercised without impediment.

† If the nervous actions concerned in the motives, resolutions, and actions become concatenated, they naturally excite each other; this may be one reason that an appeal to the feelings has a more direct and immediate influence upon the actions of men than an address to their understandings.

NECESSITY OF CEREBRAL ACTION.

The following are my chief reasons for believing that the brain has a share in the formation of the ideas :—

First, the formation of ideas is an operation that instantly ceases when the functions of the brain are suspended.

Second, the state of the brain influences considerably the regularity and perfection of its execution.

Third, the morbid state of certain internal organs that have a physical influence on the brain, have a corresponding influence upon the mental operations.

Fourth, the constitution of the body has an influence upon the constitution of the mind.

Fifth, the mind cannot, by the exertion of its power, *create* a single idea—they must all have their first origin in the impressions that are made upon it through the medium of the brain.

Sixth, the concatenation of ideas is perfectly analogous to the concatenation of nervous actions; if one is accidentally excited, the others follow spontaneously in succession.

Seventh, the succession of ideas can take place without any exertion of the immaterial principle, as in the involuntary and mechanical acts of the memory in dreaming, etc.; and it can even oppose to a certain degree the voluntary effects of the mind.

Eighth, when the functions of the brain are disordered, as in delirium and in insanity, the immaterial principle loses the power of directing them; the perceptions are incorrect; the associations of ideas are broken and altered; and the judgment is actually deceived by the false ideas and associations which rise before it.

To be more particular:—it is very certain that when the cerebral functions are arrested, whether by chemical or mechanical causes, as by a blow on the head, or by the contact of unoxygenated blood in cases of suffocation, not a single idea can be formed;—that inflammation of the brain causes false perceptions and breaks the association of the ideas; that bodily fatigue renders them vague and indistinct; that affections of the stomach and liver often produce an inordinate action of the mind, and disorder, confusion, and insubordination among the ideas; that constitutional torpidity and languor in the physical functions are usually attended by a corresponding slowness in the formation of the ideas, while the rapidity with which they pass before the mind and form their associations is greatly influenced by the warmth and irritability of the temperament; that our ideas result from impressions made *upon* us, and that they are not created by the immaterial principle; for the wildest notions of the most extravagant imagination are not formed of *new* ideas, but are new combinations of *former* ideas; that, although the immaterial principle has the chief direction of the operations that take place in the mind, the ideas sometimes succeed each other in opposition to its efforts—shewing that it is acted upon by a different principle, which is not in complete subjection;—lastly, that in insanity, the regularity of the mental functions may be restored by physical means, while *reasoning* is ineffectual.

From these facts, which shew the great influence of physical causes upon the mental operations, it should seem that the organ whose functions connect the mental and corporeal parts of our nature is not only concerned in the regular performance of the mental actions, but that we are so constituted at present, that its assistance is necessary to enable the immaterial principle to operate *at all*.

My notions respecting the nature of the immaterial principle are not consistent with the belief that it is, like the material principle, subject to disease, or to any mechanical action. The supposition that it is liable to fatigue, to exhaustion, to derangement, etc., is, in my opinion, incorrect: it applies those terms to the *mind*, which properly belong to the mind's *agent*. It must be the *brain* which repeats mechanically the same actions that have been formerly excited by the will, or by external matter; it must be the brain which acts without the participation of the will when it is excited by external causes, and which produces false impressions on the mind when its action is violent and irregular, as in insanity; and it is the brain which must be weakened in its action when it is exhausted by long-continued excitation. In this case the sensation of the fatigue and the indistinctness of the ideas is probably produced by the exhaustion of the nervous fluid. I believe that the occasional irregularities of the operations of the mind are entirely attributable to the nature of the causes that act *upon* it, and that the spiritual part, of itself, may be compared to a fixed and steady light, before which dark clouds may pass in succession, and for a while intercept its rays, while its nature and inherent powers remain unchangeable, except in their gradual increase of strength and brilliancy. This increase, however, must depend upon external causes, i. e. upon the circumstances which can add to the number of the ideas, and give them correctness; for without knowledge, its powers must remain undeveloped, and the luminary which might diffuse a dazzling radiance around, can only show a light as feeble and powerless as the remotest star.

ELECTRO-MAGNETISM.

ATTRACTION AND REPULSION.

BY P. CUNNINGHAM, ESQ.

The effects previously described of the hemispheric attractions and repulsions upon the mass-electricity and magnetism in the steel bar, show that these two bodies form an immense ocean, encircling the superficies of the respective hemispheres of the earth.

The attraction of these bodies for each other, the rotation of the earth, as well the westerly motion necessarily given them by the attractions and repulsions of the sun and moon, will naturally produce a greater accumulation of their matter toward the equator, and a progressive diminution thereof from the latter to the poles.

This equatorial accumulation seems fully verified by the swinging of the pendulum. A bar of steel, for instance, as before illustrated, whether placed on its side or its end in the northern or electric hemisphere, will always have its mass-magnetism occupying the lower part, and its mass-electricity the upper, whichever way it be shifted. Now, taking this bar and swinging it as a pendulum in the electric hemisphere, it will be evident that as the end of it rises from the earth its electric current will flow toward its *upper* side, and its magnetic current toward its *under* side, and the farther the pendulum swings, the farther will the magnetic current run along this under side, thereby increasing its power as a lever, and enabling the attraction of the electric hemisphere to pull it back again with more ease to the earth, to whichever side it may swing. Now, it is also evident, that as the attractive power of the hemisphere increased, the vibrations of the pendulum will be shortened, as well as retarded by the increasing attractive power not only pulling it quicker and quicker down, but binding it also down with stronger and stronger grasp toward the earth. To retain, therefore, the pendulum's vibration uniformly equal in an equal arc over every part of the earth, it follows from the above that as the attractive power of the

earth *increases* we must *decrease* the power of the lever, and hence arises the necessity of progressively shortening the pendulums of clocks, as we advance from the pole toward the equator, where the greatest attractive power exists. But attractions being weight, bodies, therefore, must be *weightiest* near the equator, and were it possible to construct a needle with one pole only, it must also follow that, provided there be no electro-magnetic current, it would point to the equator in both hemispheres, if it pointed horizontally anywhere, and hence also the heaviest metals, such as lead, gold, and platina, would seem fitted for magnetic needles.

It may be objected to this view, that as the poles of the needle dip more and more in their respective hemispheres as we progress either north or south from the equator, this increase of dip would consequently seem to argue an increase of attraction, instead of a diminution thereof. It must be evident, however, that as we advance from the equator toward the north, the attraction of the earth's southern magnetic zone for the south point of the needle will be progressively diminished, thereby admitting the repulsion of the northern electric zone to tilt more readily the south point of the needle upwards, and consequently cause a progressive dip of the north point; the latter point being the one necessarily tilted upwards in the southern hemisphere, and the south point the one which dips.

The opposite attractions and repulsions of the respective northern and southern hemispheres, must also cause the weights used and articles weighed in them, to vary in weight, according as electricity or magnetism predominated in the said weights or articles. Thus, if a weight, or an article weighed, contains more mass-electricity than mass-magnetism, it will weigh heavier in the southern hemisphere than in the northern, and *vice versa*, if containing more mass-magnetism than mass electricity, a circumstance which must frequently cause a difference of weight in the respective hemispheres in articles exported from the one to the other.

The difference of custom-house weight often observed between the article when shipped and when landed, has been hitherto ascribed to the absorption or exhalation of moisture during the voyage,according as an increase or deficiency of weight was found to exist; but it may be as likely owing to the absorption or exhalation of electricity or magnetism, if I may use such expressions, or to the different amounts of these bodies in the article when shipped,—when transported in the latter case from one hemisphere to the other. In corroboration of this point there is evidently a reverse of weight in particular coloured sands in the two hemispheres; thus, in the northern African desert the moving sand-hills and flying sand are of a dusky red, and the more immoveable sands of a white or leaden colour; while in the southern deserts of America the reverse is the case, showing thus a reverse weight in each species of sand in these opposite hemispheres. What can this singular circumstance be attributed to, except that of the red sand containing electricity in excess like the sun's red rays, and the pale sand magnetism in excess like his pale rays. The above is one of the many links tending to prove the sun's rays to be compounded of various proportioned electro-magnetic atoms; his most electric rays being the reddest, and his most magnetic rays the palest, while the rays between the two partake of a progressive or retrogressive scale of refrangibility or heat, according as we advance from either extreme of the rainbow-fan into which the sun's rays are expanded by the glass prism. Nearly all the chemical experiments having been hitherto made in the northern hemisphere, sufficiently accounts for any difference of weight that may exist between similar articles weighed in both the hemispheres having been hitherto unnoticed.

TIDES, AND VARIATION AND DIP OF NEEDLE.

The tides in the northern hemisphere being on an average higher than those in the southern, lend a probability to the suppositon of the moon vibrating principally with the former,—and to the moon's influence upon the tides in the northern hemisphere I confine my observations. When the moon is in repulsion with the earth, her pressure upon the ocean will naturally cause a hollow therein, and by reason of the earth's diurnal motion the westernmost of the two ridges of waters constituing the hollow will be forced backward toward the west in shape of a tide; when, however, the moon is in attraction with the earth, this attraction will lift up the waters directly under her, and through means of the earth's rotation cause a westerly moving tide also. The moon's pressure upon the earth again during repulsion operating indirectly upon every particle throughout the latter, will necessarily cause a similar westerly moving tide on the opposite side of the earth, while by her lifting upward during attraction of the matter of the electro-magnetic zone directly under her, she will cause a similar westerly moving tide on the opposite side of the earth, in consequence of the electro-magnetic matter being diminished in amount at this point proportionate to the accumulation of it at the other, admitting thereby the waters there to be more readily propelled outward through the centrifugal influence of the earth's rotation. Were the tides produced by the influence of the moon alone, they would necessarily be highest when she was at the points of greatest attraction and greatest repulsion, that is, when farthest from and nearest to the earth; but the sun, by reason of his greater size, exerting a greater attraction and repulsion upon the latter than the moon, consequently counteracts the moon's action in the elevation of the waters, when their respective influences are opposed to each other in the effecting of this object; and hence the highest tides are produced when their influences correspond, that is, when they both operate upon the same part of the ocean when in conjunction, or on opposite parts thereof when in opposition. That the solar tide should be but little perceptible, while the lunar tide on the contrary, is so prominently marked, is doubtless referable to the much greater size of the sun than the moon; so that his attractions and repulsions embracing an infinitely greater portion of the ocean's superficies, the elevations and depressions of the waters will be consequently rendered infinitely less apparent, from the great superficial extent of them thus acted upon at the same instant. The tides from repulsion must, I conceive, be generally higher than those from attraction, on account of the moon, in the latter instance, having to contend against the earth's attraction in the elevation of the waters; while the tide on the opposite side of the earth must be naturally lower than that under the moon, on account of the greater distance at which her influence is exerted. The highest spring-tides will, I conceive, be those when the sun and moon are in conjunction, and at their greatest repulsion with the earth, the next highest when the moon is at greatest repulsion, and the sun at attraction with the earth, and both in conjunction as before; while the lowest spring-tides will necessarily be those where the moon and sun are neutral lines with the earth, and in opposition to each other; and the next lowest species when they are both at greatest attraction with the earth, and in opposition to each other, because their opposing attractions, by diminishing the density of the electro-magnetic zone at the points of

the earth between them will, I conceive, thereby enable the earth's centrifugal force to bulge out the waters there, and consequently counteract the elevation of them at the places directly opposed to the sun and moon.

The lowest neap-tides will, I conceive, also be those where the sun and moon are in the neutral line with the earth; and the highest when they are in greatest repulsion with her, at that period of the moon's quarters when the above tides take place.

The foregoing deductions I have made somewhat at hazard, it being difficult to decide by inductive reasoning alone what effects the complicated influence of the sol-lunar attractions and repulsions may produce upon fluid matter exposed thereto in various positions. The earth's southern hemisphere vibrating with the sun, the latter will have consequently greater influence over the waters there than in the earth's northern hemisphere; his pressure, however, during repulsion (the northern winter), by forcing the waters of the southern hemisphere into the northern, will necessarily produce higher seas and tides in the latter than in the former; while his lifting up again, as it were, of the southern waters during attraction (the northern summer) will draw those of the northern hemisphere into the southern, and thereby produce higher seas and tides in the southern hemisphere than in the northern; the moon naturally tending to increase the above in consequence of being always propelled into the wintry hemisphere through the sun's repulsive influence upon her.

The attractions and repulsions of the sun and moon upon the earth will, by reason also of the easterly movement of the latter, produce a westerly-setting tide and current in the great electro-magnetic ocean surrounding her; the tides causing by their attraction a little easterly variation of the needle at the rising, and a little westerly variation at the setting of these luminaries, while the current caused by them will tend to produce a permanent westerly variation of the north point of the needle in the northern hemisphere, and a similar westerly variation of the south point in the southern hemisphere, in consequence of the passing atoms of the current attracting the respective points of the needle westerly after them. Each of the points will naturally dip downward in its own hemisphere, on account of the downward attraction of the latter; it being indeed solely owing to the balanced attractions of the two hemispheres that the points of the needle are directed toward the poles. The more powerful action of the moon in the northern hemisphere will produce a greater acceleration of the current than in the southern, which in the latter will be more influenced by the sun.

As, however, the local attraction of a piece of iron in a ship is capable of deflecting the needle, hence it is evident that similar causes at the bottom of the ocean, or in the adjoining coasts thereof, may produce similar deflections, independent of electro-magnetic currents, while the latter will be necessarily affected by the direction as well as the height of the great mountain ranges of the earth, and thereby tend to create a still greater uncertainty in the needle's variations; which uncertainty, however, from changes of current, will apply more to the extra-tropical latitudes than to the tropical, from the diminished sol-lunar influence in the former enabling other influential causes more readily to vary the direction of the above currents. The variation and dip of the needle, will be also necessarily affected by the annual changes of position of the sun and the earth with respect to each other, through which the electric and magnetic zones will be moved alterately north and south of the earth's equator, and the variation and dip be consequently made to undergo a small annual change in the respective hemispheres in unison with the above change of position of the zones.

That the needle is influenced in its pointings by the southern or magnetic hemisphere, as well as by the northern or electric, is manifested by the opposite variation and dip of the southern and northern point in the opposite hemispheres, and the nearly horizontal pointing of both in the vicinity of the equator, where the opposite attractions of the two hemispheres are balanced. Much of the uncertainty, however, relative to the pointing of needles, must be occasioned by the varying amounts of electricity and magnetism in each, as well as in the *opposite* poles of each. Thus if a needle contains a greater amount of magnetism than electricity, it will give a greater variation and dip in the northern hemisphere than when containing equal amounts of each.

Should the views, previously taken, relative to electricity and magnetism prove correct, I conceive that needles of superior power and uniformity of action may be constructed in the following manner. Take two equal bars of steel fit for needles, and insulate them on separate non-conducting plates, placing each on end, with a similar steel bar of double their length on end in contact with the end of each, the small bar intended for magnetism being the *undermost* on one plate, and that for electricity the uppermost on the other; apply the magnetic wire of a galvanic battery to the *under* end of the *first*, and the electric wire to the *upper* end of the *second*;—on being sufficiently impregnated, remove both at the same instant with non-conducting tongs, and, placing end to end, insulate them together in a glass tube cast to fit, and seal up with wax or resin. Magnetism being undermost and electricity uppermost, in bodies upon the earth's northern hemisphere, by the above mode the magnetism and electricity from the wires would respectively expel their opponents from the small into the large bar, by which there would be magnetism alone in the one and electricity alone in the other, while the bars being equal, their quantities would necessarily be equal also, by which a more equal as well as more powerful action would be insured. In this way the electric and magnetic currents would circulate freely in the needle as now; but should a separate insulation of each be deemed best, the bars might be made to extend the whole length of the needle, having the magnetic bar the undermost in the northern hemisphere and the electric bar undermost in the southern.

Mass-electricity and magnetism being found, however, to occupy principally the surface of bodies, it would be advisable to have the needle constructed of a series of thin steel plates joined at the ends, but separate through the remainder of their length, by which a great increase of power in an equal bulk would be obtained. The great point, however, is the possibility of thus separately insulating the above bodies, a possibility which I think agreeable to reason, from their always existing separately in the opposite poles of bodies, as well in taking routes in the galvanic trough. Neither do I conceive that their power would be much lessened by this insulation, seeing the manner in which compasses are boxed round on board a ship to secure them from injury.

Should this mode of impregnating prove as effective in practice as it is consonant to reason, a moving power may thus be formed applicable to many mechanic purposes. By similarly impregnating and insulating two separate series of steel plates, having a pendudulum with magnetism and electricity insulating separately on its opposite sides to vibrate between, a moving power might thus be created of al-

most unlimited capability; for the magnitude of the moving power being unlimited, the capability thereof, as a motorial body, would be almost unlimited, also. Cotton might be thereby spun, cloth wove, and clocks made to denote the passing time, without further expense than first cost, or even labour of winding up, keeping up in fact a perpetual motion. when once set going, so long as the machinery was preserved in a serviceable state.

This species of pendulum would vibrate between the electric and magnetic bodies like the poles of the planets with the sun, alternately attracted and repelled, in the same way indeed as the pendulum of Deluc, but with a greater power and a less risk of that power being weakened, in consequence of the protection thereof by insulation. The theory of the motion of Deluc's pendulum is, that electricity is alternately given out and received in its alternate vibrations; but a reference to the atrractions and repulsions of electro-magnetic bodies with each other, evinces that this motion may be kept up by the above actions alone.

As the conducting power of bodies seems evidently referable to their attraction for the bodies they conduct, therefore the attractions of electricity and magnetism being the *reverse* of each other, the bodies which conduct them will, according to the above view, be of a reverse nature from each other also. Thus electricity having a strong attraction for combustible bodies, these will be good electric but bad magnetic conductors; while magnetism having a strong attraction for non-combustible bodies, these will be good magnetic but bad electric conductors. The modes, indeed, by which electricity and magnetism are produced through means of friction favour the foregoing view: electricity being called vitreous electricity from its ready production by friction against glass, and magnetism resinous electricity from its ready production by friction against resin, the glass being a non-combustible body, and consequently attracting the magnetism while repelling the electricity; and the resin, a combustible body, and consequently attracting the electricity while repelling the magnetism: so that the electricity is made thereby to accumulate on the surface of the glass, and magnetism on the surface of the resin. If the above view be correct, therefore, a resiuous insulation will be required for the magnetism, and a vitreous one for the electricity; combining the two, when insulating, electricity and magnetism together.

MISCELLANEOUS.

PHILOSOPHY OF SOUND.

A bell rung under water, returns a tone as distinct as if rung in the air.

Stop one ear with the finger and press the other to one end of a long stick or piece of deal wood, and if a watch be held at the other end of the wood, the ticking will be heard, be the wood or stick ever so long.

Tie a poker on the middle of a strip of flannel two or three feet long, and press with the thumbs or fingers the ends of the flannel into your ears, while you swing the poker against an iron fender, and you will hear a sound like that of a very heavy church bell. These experiments prove that water, wood and flannel are good conductors of sounds for the sound, from the bell, the watch, and the fender, passes through the water along the deal and flannel to the ear.

It must be observed that a body while in the act of sounding is in a state of vibration, which it communicates to the surrounding air, the undulations of the air affect the ear, and excite in us the sense of sound. Sound, of all kinds, it is ascertained, travels at the rate of thirteen miles in a minute; the softest whisper travels as fast as the most tremendous thunder. The knowledge of the fact has been applied to the measurement of distances.

Suppose a ship in distress fires a gun, the light of which is seen on shore, or by another vessel, 20 seconds before the report is heard, it is known to be at the distance of 20 times 1.142 feet, or little more than four miles and a half.

Again if I see a vivid flash of lightning, and in two seconds hear a tremendous clap of thunder, I know that the thunder cloud is not more than 760 yards from the place where I am, and should instantly retire from an exposed situation.

The pulse of a healthy person beats about 76 times in a minute; if therefore between a flash of lightning and the thunder, I can feel 1, 2, 3, 4, &c., beats of my pulse, I know that the cloud is 900, 1800, 2,700, &c., feet from me.

Sound, like light, after it has been reflected from several places, may be collected into one point or focus, where it will be more audible than any other part—on this principle whispering galleries are constructed.

Speaking trumpets, and those intended to assist the hearing of deaf persons, depend on the reflection of sound from the sides of the trumpet, and also upon its being confined and prevented from spreading in every direction. A speaking trumpet, to have its full effect, must be directed in a line towards the hearer. The report of a gun is much louder when towards a person than in a contrary direction.

Extraordinary Discovery.—We copy verbatim, the following notice of a late French discovery, from an English paper. Whether it is of any importance, or whether it is any discovery at all, we are entirely ignorant, but hope some of our inquisitive readers will test it:

"The injection of a solution of chlorure of aluminum into the aorta or main arterial trunk of an animal will preserve it fresh for an indefinite period, without imputing to it the slightest taste. The chloric acid of salt renders the gelatine or decomposable part of animal matter incapable of decomposition, perhaps by destroying some alkali, for which the acid has a greater affinity than for aluminum. The latter substance, thus deprived of its acid, becomes an insipid powder. The particulars of this discovery, by M. Gannel, will be found in the bulletin of the French Academy of Sciences for the sitting of March 22, and in the Literary Gazette of that meeting. From two to five pounds of salt, dissolved in twice or three times its weight of water, is sufficient for an ox. Persons disposed to make experiments on the subject, need scarcely be reminded that the smaller animals, such as rabbits or cats, should be employed. Subjects for anatomical discussion should also be prepared in this manner. Here is a new field opened for commerce of a most important discription.

Thousands of oxen on the coast of Spanish America are slain for their skins only, the flesh being cast upon the dunghill; it may now be preserved and shipped for the West India market as fresh meat. The health of seamen on long voyages will be preserved, and the comfort of emigrant passengers to Sydney will be materially improved, by the application of this important discovery. The table of the Academe des Sciences, on the reading of M. Gannal's memoir, was covered with legs of mutton, fowls, "et id genus omne," which had been preserved for many months by the new process. The chlorure of aluminum would be very cheap when made on a large scale for commercial purposes."

THE

MAGNET.

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PSYCHOLOGY.

For the Magnet.

MAGNETIC PHENOMENA.

The greatest difficulty that a new discovery like human magnetism, has to encounter, is an obstinate incredulity, which wilfully shuts the eyes to the best established facts. Could the mass of intelligent persons be induced to observe with a cautious love of truth, instead of a dogged prejudice against any thing contrary to their own experience, the speed of new truth would be more creditable to the human mind.

That this incredulity is so unreasonable as to deserve the ridicule of fair minds, cannot be better shown than in the case of somnambulism. The facts of somnambulism are familiar to the medical profession; and, indeed, to most persons; they are as well established by proof as any facts in natural history. No one doubts them; all ages have known them. Now, the phenomena of what is called human magnetism, are precisely of the same class and character, and not a whit more extraordinary. Natural somnambulism shows, past all doubt, that man may be in a sort of living death—his outward senses dead, while his internal senses are more keenly awake than ever. He may be profoundly asleep, yet perform the deeds of wakefulness, with intelligence, method, correctness, and activity. He may see with his eyes closed—see in darkness—see with an opaque body between his eyes and the object—he is clairvoyant. Your incredulous man will easily believe this, but tell him that you put the man to sleep by a certain process called *magnetising*, and he instantly disbelieves precisely the same phenomena. Now clearly, there is nothing unphilosophical in believing that an actual state of the human mind or body may be produced by artificial means. Nothing would be more wonderful than the state of sleep and dreaming, if we were not familiar with it. So of syncope—epilepsy—apoplexy—delirium. But if these states of body and mind, are admitted to be possible, then there is nothing incredible in the operation, that they may be produced by drugs, by art, or by accident.

I was forcibly struck with the unreasonableness of this incredulity in a conversation with my very learned and sensible friend, the Hon. Judge ———. I was relating to him some experiments in human magnetism which I had seen, and others of which I had heard. When I came to drawing teeth in the magnetic sleep, without waking the patient, he laughed at my credulity. The subject was partially changed, and we talked of somnambulism, when he had his own stories to tell. He stated a case of a man who was in the habit of sleepwalking, and being in a strange house, got out of the 2nd story window, fell to the pavement, broke one of his legs, and was otherwise injured. He did not awake till he had crawled across the street, and was supporting himself by some object there, when he was found, ignorant of all that had happened to him. "You don't believe that, Judge," said I—"Indeed, I do," said he, "I know it to be true!—I was there."—Surely, said I, tooth drawing, pinching, sticking pins, strange noises, and pungent smells are nothing to this. He perceived my advantage, but it was plain that so long as I called it "animal magnetism," he had made up his mind to disbelieve it.

One of my own sisters, many years since, would often, in the night time, in sound sleep, spring up in bed, in a state of dreadful alarm. Her screams would arouse the family—lights brought into her chamber, showed her with eyes wide open, glaring on vacancy, tears streaming from her eyes, and every thing showing the fright of her spirit. The light produced no effect—the tones of soothing assurance, the words of solace, the loud call of her name, the severe shakes, were alike ineffectual to break the spell which bound her outward senses and put a lying spirit into her intellectual perceptions. She finally became calm, lay down—slept on till morning, when she awaked, as usual, unconscious of the scenes of the night.

My friend, counsellor B., related to me a fact in his observation. His younger brother and himself slept together. The brother waked him, said he had a dreadful tooth-ache—rose, wrapped one of the blankets about him, instead of dressing himself—went and called his mother, who rose also, and they went down stairs. She made some appliances to ease the pain—put some lint into the tooth, &c., and he went up stairs to go to bed again. When about half way up stairs, he awoke; he was surprised to find himself in such a situation—had no tooth-ache—was unconscious of what had passed—spit out the lint, and went to bed again and slept quietly.

Another fact of the same class is related by the Archbishop of Bordeaux, about 100 years ago, of a young ecclesiastic, whom he had known at the seminaries—[I translate it.] He imagined himself, one night, in the midst of winter, walking on the bank of a river, and seeing a child fall in, who was drowning. He instantly threw himself on his bed in the posture of swimming—performed the motions of swimming, till he seemed to have fatigued himself, when he felt on the corner of the bed a bunch of the covering, which he took for the child. He seized it with one hand, and continued to swim with the other, returning, as it were, to the bank of the river. He then laid down his burden, and came out of the water shivering, and his teeth chattering as if he had

really been in a frozen river. He said to those about him, that he was freezing—that he should die with cold—that his blood was frozen. He asked for a glass of brandy to warm him, but there being none at hand, they gave him water. He tasted it, perceived the cheat, and demanded brandy more sharply, telling them the danger he was exposed to. They gave him some cordial, which he drank with much satisfaction, and said it gave him great comfort. He did not, however, awake, but went to bed again and slept more tranquilly.

These three cases were of a class somewhat peculiar and extraordinary. They seem to unite the phenomena of dreaming, common sleep-walking, and nightmare. The scenes, the pains, the fright, the sensations, were imaginary. The motions, actions, and wants, were, however, natural, and consistent with these unreal sensations. They are, however, cases, clearly within the proper disposition of somnambulism, viz.:—a state of mind and body in which the patient, in a profound sleep, performs different voluntary actions as though he were awake.

But the more perfect somnambulism is more interesting, and more like the magnetic state. It is characterized by the absence of dreams, imaginary pains, and fancied scenes. Every thing is real. With all his senses locked up in sleep, the somnambulist sees things as they are—he speaks and hears correctly. His mind and body are subject to his rational control. If he should awake and be conscious of what had passed, he would find all things truly as he had perceived them while in the profound sleep in which they had been so mysteriously manifested to his inward sense. Of this, one of the most remarkable instances was also the young ecclesiastic, whose case is related by the distinguished prelate above mentioned,—who would arise from his sleep, go to his room, take pen, ink and paper, and compose good sermons. When he had finished a page, he would read it aloud, and correct it. Once, he had written *ce devin enfant*; in reading over the passage, he substituted *adorable* for *devin*; but observing that *ce* could not stand before *adorable*, he added *t*. *The archbishop held a piece of pasteboard under his chin, to prevent him from seeing the paper on which he was writing, but he wrote on, not at all incommoded.*—The paper on which he was writing was then removed, and another piece substituted; but he instantly perceived the change. He wrote pieces of music in this state, with his eyes closed. The words were under the music, and once, were too large, and not placed exactly under the corresponding notes. He soon perceived the error, blotted out the part, and wrote it over again with great exactness.

B.

New York, Sept. 1842.

THE HUMAN SOUL.

We have long been of the opinion, that a distinction should be made between what is called the "spirit," or the *thinking, self-determining principle*, and the soul, or animal life. Nor can there be any reasonable doubt, but that the Christian Scriptures support this view of the soul.

It does not come within the perview of our work to enter upon the investigation of purely theological questions, nor shall we go beyond our limits in admitting the following article. It must be seen at once, that we could not very well, do ample justice to the subjects, which we have undertaken to examine, without giving our attention to the scripture account of *man*. For, though we do not suppose the Bible to have been designed for the illustration of mental science, yet we may avail ourselves of any light which its sacred pages seem to shed upon this interesting subject.

We have supposed the soul to be nothing more nor less than *animal* life, and this animal life is what we denominate, "man's magnetic nature." This nature is controlled by the *spirit*, the WILL, or that unchanging, self-determining principle, which constitutes man a moral, responsible being.

The following article is from "Graham's Philosophy of Sacred History,"—*No.* 1, *pp.* 94-110:

So exceedingly concise and summary is the Mosaic history of the primitive period of the world, and so abundantly have traditionary interpretations and poetical fictions enlarged upon, and embellished that history, that it is hardly possible for us to divest ourselves wholly of the misguiding influence of erroneous education and fanciful associations, in relation to the original family of man.

The notion seems to be generally entertained, that the great progenitor of our race, before his first transgression, was not only in a sinless and holy state, but that he also possessed a largely developed and most extensively informed mind, and an extraordinarily rich and highly exalted moral character:—that a very polished and perfect language was Divinely communicated to him, adapted to an unlimited range and scientific accuracy of discourse:—that he was endowed with something like an intuitive knowledge of all things, and an angelic wisdom of understanding:—in short, that as he daily held converse with angels and with God, so he was elevated in intellectual and moral condition, near to the state of angels. But this view of the subject, however pleasing and poetical it may be, is very far from being warranted by the nature of things, or by any authentic record of the case. The sacred scriptures, though somewhat indefinite concerning these particular points, are nevertheless sufficiently explicit and definite in regard to the general character, condition, and circumstances of Adam, to show that the Mosaic Record harmonized perfectly with scientific demonstration:—and the confirmation which these reciprocally afford each other, is so complete as to remove every ground of reasonable doubt.

They who read only our English version of the sacred Scriptures, however, and who understand its language according to present usage, can hardly derive from it, the full force of the evidence in relation to the primitive state of man which the original Hebrew and Greek afford. The English word "*soul*" is now used to signify "the spiritual, rational and immortal substance in man, which distinguishes him from brutes;" and, in our translation of the history of the creation, man is distinguished from all the other creatures which God made, by the endowment of "*a living soul.*" But this distinction is not found in the original text. The same words which are rendered "*living soul*," in our version, in relation to man, Gen. 2: 7, are in the original, used in precisely the same sense, in relation to all the other animals, and most evidently, if "*nephesh*" is rendered *soul* in one case, it ought to be in every case where it is used with the same original meaning; and then the description of the creation, of the animal kingdom, would read thus: And God said, let the waters bring forth abundantly the moving creature that hath [*nephesh 'hayya*] *a living soul*, and fowl that may fly above the earth, in the open firmament of heaven. And God created great whales and every [*nephesh ha 'hayya*] *living soul* that moveth, which the waters brought

forth abundantly after their kind, &c. And God said, Let the earth bring forth the [*nephesh 'hayya*] *living soul* of his kind, cattle, and creeping thing, and beast of the earth after his kind. And God said, To every beast of the earth, and to every fowl of the air, and to every thing that creepeth upon the earth, wherein there is [*nephesh 'hayya*] *a living soul*, I have given every green herb for meat. Gen. 1: 20, 21, 24, 30. And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life, and man became [*le nephesh 'hayya*] *a living soul.*—And the Lord God brought unto Adam every beast of the field, and every fowl of the air, which he had formed out of the ground, to see what Adam would call them; and whatsoever Adam called every [*nephesh 'hayya*] *living soul*, that was the name thereof, Gen. 2: 7, 19. And proceeding still farther into the Mosaic history, we read as follows:—And God spake unto Noah and to his sons with him, saying, Behold, I establish my covenant with you, and with your seed, after you, and with every [*nephesh ha' hayya*] *living soul*, that is of the fowl, of the cattle, and of every beast of the earth with you. And God said, This is the token of the covenant which I make between me and you, and every [*nephesh 'hayya*] *living soul* that is with you, for perpetual generations. And I will remember my covenant which is between me and you, and every [*nephesh 'hayya*] *living soul* of all flesh. And the bow shall be in the cloud, and I will look upon it that I may remember the everlasting covenant between God and every [*nephesh 'hayya*] *living soul* of all flesh that is upon the earth. Gen. 9: 8, 9, 10, 12, 15, 16.—And if we continue to translate the Hebrew word *nephesh* by the English word *soul*, in other instances in which it is used in the same primary sense, we shall read as follows:—But the flesh with the *soul* thereof, which is the blood thereof, shall ye not eat. Gen. 9: 4. For the *soul* of the flesh is in the blood, and I have given it to you upon the altar, to make an atonement for your *souls;* for it is the blood that maketh an atonement for the *soul.* For it is the *soul* of all flesh; the blood of it is for the *soul* thereof; therefore, I said unto the children of Israel, Ye shall eat the blood of no manner of flesh; for the *soul* of all flesh is the blood thereof. Lev. 17: 11, 14.—Be sure that thou eat not the blood, for the blood is the *soul;* and thou mayest not eat the *soul* with the flesh. Deut. 12: 23.—And surely, your blood of your *souls* will I require; at the hand of every beast will I require it, and at the hand of man; at the hand of every man's brother will I require the *soul* of man. Gen. 9: 5.—If men strive, &c. and if mischief follow, thou shalt give [*nephesh tahath nephesh*] *soul for soul.* Exod. 21: 23.—And the Lord said unto Moses in Midian, Go, return into Egypt, for all the men are dead which sought thy *soul.* Exod. 4: 19.—And Reuben delivered Joseph out of the hands of his brethren, and said, Let us not kill his *soul.* Gen. 37: 21.—And the Lord said unto Satan [concerning Job] behold, he is in thy hand, but save his *soul.* Job 2: 6.—Job said, What is mine end that I should prolong my *soul.* Job 6: 11.—A righteous man regardeth the *soul* of his beast. Prov. 12: 10.

The Hebrew word *nephesh*, in its radical, substantive and derivative forms, is used about seven hundred times in the Old Testament. It is most generally rendered either *soul* or *life*, in our English version, at the discretion of the translators. In some instances, in the same connection, and with precisely the same original meaning, it is rendered both *soul* and *life.* Thus, in Gen. 19: 19, 20, Lot says to the angel, Behold now thy servant hath found grace in thy sight, and thou hast magnified thy mercy which thou hast showed unto me, in saving my [*napshi*] *life*; and I cannot escape to the mountain lest some evil take me and I die. Behold now, this city is near to flee unto; let me escape thither and my [*napshi*] *soul* shall live. See also Lev. 17: 11. (§ 96.)—In its primitive radical sense, it means to *breathe—to take breath*; and in its substantive form, *breath*—the vivifying or animating breath.—In its most comprehensive, primitive sense, it means, not what is peculiar to man, but what is peculiar to the animal kingdom —to "*all flesh*;" (Lev. 17: 14.) namely, *animal life* as the basis of animal consciousness, sensibility, perception, feeling, instinct, appetite and voluntary power. And hence, it is often used in a *secondary* and figurative sense, to signify the animal soul, not only as comprehending the animal feelings, emotions, appetites, &c.; but also, as incorporated, and including the body with all its animal, intellectual and moral attributes and powers; and accordingly, all the properties and powers of the animal, intellectual and moral nature of man, are, in the Hebrew Scriptures, *figuratively* attributed to *nephesh.* Thus: *nephesh* is said to live; to have appetite; to desire food; to be hungry, and thirsty; to long to eat, and to lust for certain kinds of food; to be polluted with unclean food; to be full to loathing; to be empty; to famish; to be dried away from want of food, &c. And again, *nephesh* is said to be in jeopardy; to be feared for, trembled for, fled for; to be devoured; to be slain, to be put to death; to die; to be dead. Thus; whosoever hath slain any *soul*, &c., Num. 31: 19.—Will ye pollute me among my people, &c. to slay the *souls* that should not die, and to save the *souls* alive that should not live?—Ezek. 13: 19. And Joshua took Makkedah and smote it with the edge of the sword, and the king thereof he utterly destroyed, them, and all the *souls* that were therein;—he smote it with the edge of the sword and all the *souls* that were therein. Josh. 10: 28, 30.—And Samson said, Let my *soul* die with the Philistines. Jud. 16: 30.—All the days that a Nazarite separateth himself unto the Lord, he shall come at no *dead soul.* Num. 6: 6. Neither shall the high priest go into any *dead soul*, nor defile himself for his father or for his mother.—Lev. 21: 11. See also, Num. 9: 6, 7, 10, and 19: 11, 13, where *nephesh* is used in the same sense, and rendered *body*, by our translators: and Lev. 22: 4, and Num. 5: 2, where it is rendered *the dead.*—And again: *nephesh* is said to think; to know, to have knowledge; to remember; to love; to hate; to rejoice; to grieve; to melt for heaviness; to be lifted up; to be cast down; to be proud; to be humble; to thirst after God; to pant after the Lord; to be poured out before the Lord; to desire evil; to take vengeance; to touch an unclean thing; to sin; to swear; to commit trespass, &c.—*Nephesh* was also used by the Hebrews, as *soul* is by us, to signify the individual human being or person: as—all the *souls* that came out of the loins of Jacob were seventy *souls*, Exod. 1: 5,—according to the number of your *souls*, Exod. 16: 16,—all the *souls* of the house of Jacob which came into Egypt were three score and ten.—Gen. 46: 27.—If a man be found stealing a *soul* of his brethren of the children of Israel, and maketh merchandize of him, or selleth him, then that thief shall die. Deut. 24: 7.—if a a priest buy a *soul* with his money, &c. Lev. 22: 11.—and the *souls* that they had gotten in Haran, &c. Gen. 12: 5.

It is important here to remark, that the book of Genesis was probably written some thirty or forty years earlier than any other part of the Hebrew Scriptures; and that the time during which the Old Testament, as a whole was being written, was not less than a thousand years. And, during this time, the Jews were, as a general fact, gradually developing the intellectual and moral man; and as a natural

and necessary consequence, their language was, almost continually undergoing changes, as to the constituent elements in the complex ideas signified by their words, and becoming more and more metaphysical and rich in meaning. Hence, *nephesh*, and many other Hebrew words which were, originally, of a purely animal import, gradually took on a metaphysical meaning, and came more and more to be used to signify mental and moral qualities. And hence, also, it is obviously not a correct method of Biblical interpretation, to determine the meaning of words in the book of Genesis, by the use of language in the later Hebrew Scriptures.

The Greek word *psuche*, in its radical substantive and derivative forms, exactly corresponds in signification, both primary and secondary, literal and figurative with the Hebrew word *nephesh*; and accordingly *nephesh* is always rendered *psuche* in the *Septuagint*. Thus; *nephesh hayya*, in the Hebrew, [*living creature and living soul* in our English version] Gen. 1: 20, 21, 24, 30. 2: 7, 19, 9: 10, 12, 15 and 16. Lev. 11: 10, &c., is *psuche zosa* [*living psuche*] in the Septuagint: and *nephesh meth, or dead nephesh*—meaning in a figurative sense of the word, "*nephesh*," *dead body*, Lev. 21: 11. Num. 6: 6, &c., is rendered *psuche teteleutekuia*, or *dead psuche*, in the Septuagint: and *nephesh ta' hath naphesh*, [*life for life*] Exodus 21: 23, is *psuchen anti psuches:*—and so in nearly every instance throughout the Old Testament, the Hebrew word *nephesh*, whether used in its primitive or secondary, literal or figurative sense, is represented by *psuche*, with a correspoding meaning in the Septuagint. And it is an interesting consideration in regard to this Greek version of the Old Testament, that we have little reason to doubt that, at least, so much of it as the five books of Moses, was made nearly three thousand years before Christ, by learned Jews, with whom both the Hebrew and the Greek had all the freshness of living languages.

Psuche in its various forms, occurs more than a hundred times in the original text of the New Testament; and like *nephesh* in the Old Testament is generally rendered either *soul* or *life* in our English version at the discretion of the translators; and like *nephesh*, also, it is predicated both of man and the lower animals. Thus, in Rev. 8: 9, 16: 3. And the second angel sounded, &c., and the third part of the creatures which were in the sea and had *psuchas* [*life*] died. And the second angel poured out his vial upon the sea; and it became as the blood of a dead man; and every *psuche zosa* [*living soul*] died in the sea. So in Lev. 11: 10,—every *nephesh ha 'hayya* [*living soul*] or soul which lives in the waters, and hath not fins and scales, shall be an abomination unto you.—While Paul was preaching at Troas, in the night a young man who was sleeeping in a window, fell down from the third loft, and was taken up dead.—And Paul went down and fell on him, and embracing him, said, Trouble not yourselves, for his *psuche* [*life*] is in him. Acts. 20: 9, 10. So in 1 Kings 17: 21, 22. And Elijah stretched himself upon the [dead] child three times, and cried unto the Lord and said, O Lord, my God! I pray thee, let this child's *nephesh* [*soul,*] come into him again. And the Lord heard the voice of Elijah; and the *nephesh* [*soul*] of the child came into him again and he revived. And the angel of the Lord appeared, in a dream, to Joseph, in Egypt, saying, Arise, and take the young child and his mother, and go into the land of Israel; for they are dead which sought the young child's *psuchen* [*life*] Matt. 2: 20.—Take no thought for your *psuche* [*life*] what ye shall eat or what ye shall drink. Is not the *psuche* [*life*] more than the food, &c.? Matt. 6: 25.—For whosoever will save his *psuchen* [*life*] shall lose it; and whosoever will lose his *psuchen* [*life*] for my sake, shall find it. For what is a man profited if he shall gain the whole world and lose his own *psuchen*, [*soul or life*?] or what shall a man give in exchange for his *psuches* [*soul or life*?] Matt. 16: 25, 26. So in Job, 2: 4—all that a man hath will he give for his *naphsho* [*life.*] For the Son of man is not come to destroy men's *psuchas* [*lives*] but to save them. Luke, 9: 56.—The son of man came not to be ministered unto, but to minister; and to give his *psuchen* [*life*] a ransom for many. Matt. 20: 28. So in Isa. 53: 10, 12. When thou shalt make his *naphsho* [*soul i. e. life*] an offering for sin, &c.:—because he hath poured out his *naphsho* [*soul i. e. life*] unto death, &c. And John 10: 11, 17. The good shepherd giveth his *psuchen* [*life*] for the sheep. I am the good shepherd, and I lay down my *psuchen* [*life*] for the sheep. Also, 1 John 3: 16, because he laid down his *psuchen* [*life*] for us; and we ought to lay down our *psuchas* [*lives*] for the brethren.—Peter said, Lord, I will lay down my *psuchen* [*life*] for thy sake, John 13: 37. Men that have hazarded their *psuchas* [*lives*] for the name of our Lord Jesus Christ. Acts 15: 26—Neither count I my *psuchen* [*life*] dear unto myself, so that I might finish my course with joy, &c., Acts 20: 24.—I perceive that this voyage will be with hurt and much damage, not only of the lading and ship, but also of your *psuchon* [*lives*] Acts 27: 10,—and in verse 22. Now, I exhort you to be of good cheer; for there shall be no loss of *pesuches* [*life*] among you, but of the ship.—And the merchants of the earth shall weep and mourn over Babylon; for no man buyeth their merchandise any more—their merchandise of gold, and silver, and precious stones, &c. &c. and bodies and *psuchas anthropon* [*souls of men*] Rev. 18: 13. So in Ezek. 27: 13. They traded *be nephesh adam* [*in the souls of men.*]

The primary sense of the verb *psucho* is to *breathe*; and the most simple, primary sense of the substantive *psuche*, is *breath*—the vivifying or animating breath of all animals; and in its most comprehensive primary sense, like *nephesh* in the Hebrew, it means *animal life* as the basis of animal consciousness, sensibility, perception, feeling, instinct, appetite and voluntary power. And hence, by a figure of speech in which a part is put for the whole, it is sometimes used to include all these, together with the intellectual and moral powers, in the complex idea of *man;* as in Luke 12: 19. I will say to my *psuche* [*soul*] *psuche*, thou hast much goods laid up for many years; *take thine ease, eat, drink, and be merry.*—Immediately following, however, it occurs in its more simple and primitive sense.—But God said unto him,—Thou fool! this night do they require thy *psuchen* [*life*] of thee; then whose shall those things be, which thou hast provided?—In Heb. 4: 12, it is used to distinguish animal life with its attributes, common to all animals, from the more purely metaphysical or spiritual nature of man. The word of God is quick and powerful, and sharper than any two-edged sword, piercing, even to the dividing asunder of *psuches* [*soul*] and *pneumatos* [*spirit*] i. e. discriminating between the animal sensibilities, affections, &c. and the purely spiritual exercises; and, with this discriminating power, accurately discerning the moral quality of the thoughts and intents of the heart.—And again: in 1 Thess. 5: 23, it is used to distinguish animal life with it peculiar attributes, both from the spirit and from the body. I pray God your whole *pneuma* [*spirit*] and *psuche* [*soul*] and *soma* [*body*] be preserved blameless, unto the coming of our Lord Jesus Christ.—In other instances it is used to signify the depraved animal sensibilities, appetites, and passions, as affecting or influencing the intellectual and moral character and conduct of man. Thus in James, 3:

14, 15. If ye have bitter envying and strife in your hearts, glory not; and lie not against the truth. This wisdom descendeth not from above, but is earthly, *psuchike*, [*sensual*] devilish. And in Jude, 18, 19.—Remember how that they told you there should be mockers in the last time, who should walk after their own ungodly lusts. These be they who separate themselves, *psuchikoi* [*sensual*] having not the spirit. So in Prov. 23: 2—Put a knife to thy throat if thou be *ba'al nephesh* [*a greedy man, a sensualist, given to appetite.*]—Also in Hab. 2: 5. Yea, also, because he transgresseth by wine, he is a proud man, neither keepeth at home, who enlargeth his *napsho*, [*desire of lust*] as hell, [*she'ol*] and as death, and cannot be satisfied.—In three instances *psuche* is rendered *mind*: thus, Acts 14: 2. But the unbelieving Jews stirred up the Gentiles, and made their *psuchas* [*minds*] evil-affected against the brethren. And Phil. 1: 27,—stand fast with one spirit and with one *psuche* [*mind.*] And Heb. 12: 3,—lest ye be wearied and faint in your *psuchais* [*minds.*] In John 10: 24. How long wilt thou *make us to doubt*; (*psuchen 'emon aireis*) *hold our mind in suspense, perplex our soul.*—In Eph. 6: 6 doing the will of God *ek psuches* [*from the heart.*] And Col. 3: 23. Whatsoever ye do, do it *ek psuches* [*heartily*] as to the Lord.

In a very few instances in the Gospels, aad somewhat more frequently in the Epistles, *psuche* is used in a more purely metaphysical sense to signify the *immortal soul* of man. Thus, Matt. 10: 28. Fear not them which kill the body, but are not able to kill the *psuchen* [*soul*] but rather fear him who is able to destroy both *psuchen* [*soul*] and body in hell [*gehenna.*] And James 1: 21,—receive with meekness the engrafted word, which is able to save your *psuchas* [*souls.*] And 1 Pet. 1: 9. Receiving the end of your faith, even the salvation of your *psuchon* [*souls.*] But this signification evidently came into use among the Jews, with the more clearly defined ideas of man's immortality 'brought to light by Jesus Christ,' and which, at most, are but dimly and indistinctly shadowed forth in the Old Testament; and it is, nevertheless, fully manifest, even from the New Testament use of the word, that its primitive signification concerning human beings, relates exclusively to the *animal nature* of man. And the Apostle Paul, who was a more thorough Greek scholar, and who, from education, had a more accurate knowledge of the primitive and radical meaning and force of the word than any other New Testament writer, though he sometimes employs it in a secondary sense which relates to the immortal nature of man, generally uses it with a strict regard to its primitive meaning, to signify, simply, animal life, or, more comprehensively, the animal nature of man; and it is in this sense that he uses it in his first Epistle to the Corinthians, not only in contrasting the animal with the spiritual nature of man, but also in contrasting the first with the last Adam; or Adam with Christ; and in so doing solves the very question under consideration.

"Now, we have received," says Paul, "not the spirit of the world, but the Spirit which is of God; that we might know the things that are freely given to us of God. Which things also, we speak, not in the words which man's wisdom teacheth; but which the holy Spirit teacheth, comparing spiritual things with spiritual. But the *psuchikos anthropos* [*animal man*] receiveth not the things of the Spirit of God; for they are foolishness unto him; neither can he know them, because they are spiritually discerned." 1 Cor. 2: 12, 14.—In our English version of the New Testament *psuchikos*, in this, and subsequent passages of the same Epistle, which I shall examine, is, without any propriety or definiteness of meaning, rendered "*natural.*" For the word *natural*, in its true sense, is as strictly applicable to the spirit as to the body. All that God made of man, whether corporeal or spiritual,—whether pertaining to his bodily or intellectual or moral nature—is equally *natural*; and therefore to speak of the natural man, or *natural* body, in contradistinction to a *spiritual* man or *spiritual* body, is absurd. It is true that we speak of the *moral* man in distinction from the *natural*; and with propriety; because we still include in the meaning of the word *natural*, all the constitutional faculties and powers of man's whole complex nature—as well his intellectual and moral, as his prehensive and locomotive, or upper and lower limbs; and by the word *moral* we mean only his own voluntary exercise of his natural faculties and powers, and the inherent results of that exercise.—The moral sense, or any intellectual faculty in the human constitution, therefore, is as truly a natural faculty, as any bodily power with which man is constitutionally endowed. It is the *animal* man that receiveth not the things of the Spirit of God, as the context clearly shows; for the Apostle having asserted this of the *psuchikos anthropos*, immediately applies the doctrine to the Corinthian proselytes, and affirms of them,—And I brethren could not speak unto you as unto *spiritual*, but as unto *sarkikois*—even as unto babes in Christ. Here, it is manifest that *psuchikos* and *sarkikos* are used as convertible terms, to signify the same thing. And, indeed, both of these terms are always used in the New Testament, to distinguish the *animal* man from the *spiritual*; and also, *sarx* [*flesh*] from which the adjective *sarkikos* [*carnal**] is derived, has, in general, the same signification. Critically speaking, however, there is a nice difference between the New Testament meaning of *psuchikos* and that of *sarkikos*. The former signifies the animal man in distinction from the spiritual, without necessarily including the idea of *depravity*; the latter signifies the animal man with all his depraved instincts, appetites, propensities, lusts, &c. Thus in the passage under consideration, the Apostle says to the Corinthians, For whereas there is among you envying and strife, and divisions, are ye not *sarkikoi* (*carnal*?)—And again, Rom. 7: 14—24. We know that the law is *spiritual* but I am *sarkikos* (*carnal*,) have a depraved animal nature—a body of death! so that I do not so perfectly and invariably obey the Spirit, as I would; or, as in the spirit of my mind I desire and determine to. And also, 1 Pet. 2: 11. Dearly beloved, I beseech you, as strangers and pilgrims, abstain from *sarkikon 'epithumion* (*fleshly lusts*) which war against the soul.—This I say then, Gal. 5: 16, 17. Walk in the *Spirit*, and ye shall not fulfil the lusts of the *flesh*. For the flesh lusteth against the spirit, and the spirit against the flesh; and these are contrary the one to the other; so that ye cannot do the things that ye would.—For, (Rom. 8: 5, 6, and 7,) they that are after the flesh do mind the things of the flesh; but they that are after the Spirit, the things of the spirit. For the minding of the flesh is death; but the minding of the Spirit is life and peace; because the minding of the flesh is enmity against God; for it is not subject to the law of God:—i. e. the minding of the flesh is contrary to the minding of the law of God.—And (Gal. 5: 24) they that are Christ's have crucified the flesh with the affections and lusts. I beseech you therefore, brethren, by the mercies of God, (Rom. 12: 1) that ye present your bodies a living sacrifice, holy, acceptable unto God, in spiritual service. But this nice difference is not always observed, and *psuchikos*, as we have seen, is sometimes used to signify the depraved animal sensibilities, appetites, and pas-

* Our English word *carnal*, is from the Latin adjective *carnalis*, derived from *carno, carnis*, which means flesh.

sions, as affecting, or influencing the intellectual and moral character and conduct of man; and *sarkikos*, in some instances, signifies simply the animal nature of man, without necessarily including the idea of depravity. Thus, 1 Cor. 9: 11. If we have sown unto you spiritual things, is it a great thing if we shall reap your carnal things? i. e. If ye have received from us those things which minister to your *spiritual* wants, is it not just that we should receive from you, those things which minister to our *animal* wants.—See also, Rom. 15: 27. Nevertheless, whether this difference is observed or not, yet in all cases, *psuchikos* and *sarkikos* are used to distinguish the *animal* man from the *spiritual;* and the true rendering of *psuchikos*, is *animal.* And therefore, in 1 Cor. 15: 42, 47, the *soma psuchikon* is the *animal body* which is sown in *corruption* and dishonor, and weakness, and raised in power and glory, an incorruptible *soma pneumatikon* (*spiritual body*) There is a *soma psuchikon* (*animal body*) and there is a *soma pneumatikon* (*spiritual body.*)—And so it is written, The first man Adam was *eis psucken zosan* (*a living animal;*) the last Adam, *eis pneuma zoopoioun* (*a quickening or vivifying Spirit.*) Howbeit, that was not first which is *pneumatikon* (*spiritual;*) but that which is *psuchikon* (*animal;*) and afterward that which is *pneumatikon* (*spiritual.*) The first man is of the earth, earthly; the second man is the Lord from heaven.

The Apostle here quotes the very language of the Septuagint in relation to Adam, Gen. 2: 7. "*eis psuchen zosan,*"—*a living animal;* this, beyond all question, is the true rendering of the Hebrew *le nephesh 'hayya* in Gen. 2; 7, as well as in Gen. 1: 20, 21, 24, 30, &c., where it relates to the lower animals; and the true translation of the passage into English, is manifestly as follows:—And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life, and man became a *living animal.*

Let it not be supposed, however, that it is, in anywise my object to establish this rendering of the passage in question, in order to prove that man has no *soul*, in our modern sense of the word.—I wish to show, what every scholar knows, or may know to be true, that the *nephesh 'hayya* of the Hebrew text, or *psuche zosa* of the Greek, does not distinguish man from other animals.—In my Lectures on the Science of Human Life, (§ 522. *et seq.*) I believe I have gone as far as any one can go in human science, to prove that man has an immaterial, and immortal soul; and I have already shown in this work (§ 72 74,) that man was distinguished by his Creator, from all other animals, in being made in the image and after the likeness of his Maker,—in being constituted, organzed, and capacitated to receive the mental and moral impress of the Godhead—to be the mental and moral representative of God on earth.

THE MORAL FACULTY.

We have before referred to an Essay, written by the celebrated Benjamin Rush, in 1786, in which he approached very near to the discovery of Phrenology; and also, to the fact, that the portions of his brain where phrenologists have located the organs of *causality*, (and where we have supposed two of the large consecutive poles of the brain to be located,) were very large. These same organs were large in Franklin's head, and also in Herschel's and Sir Isaac Newton's. Indeed, it is believed that an instance is not known, where any person has ever made any discoveries of note, in whom these portions of the brain were small. This Essay was republished, in 1839, by Mr. George Combe, of Edinburgh, with the following preface:

"In the numerous discussions which have arisen out of Dr. Gall's discovery of the functions of the brain, many attempts have been made to show that his views were not original. The divisions of that organ into different compartments, and the location into those of different mental faculties, exhibited by various authors, from Aristotle down to John Baptista Porta who published in the seventeenth century, have been confidently referred to, as evidences that Dr. Gall's doctrines are the mere revival of exploded theories. Dr. Gall himself has recorded the opinions and speculations of these authors, and pointed out that while they located the faculties in different parts of the brain from fancy, he did so from observation. But the nearest approach to Dr. Gall's discovery, which has come under my notice, is one that the opponents of Phrenology have not referred to. It is contained in "An Inquiry into the influence of Physical Causes upon the Moral Faculty," delivered by Dr. Benjamin Rush before a meeting of the American Philosophical Society, held at Philadelphia, on the 27th of February, 1786, published by their request, and dedicated to Dr. Benjamin Franklin. In this Inquiry "coming discoveries" may be said to have cast their shadows before; and Dr. Rush, by observing and faithfully recording the phenomena of nature, has brought to light several important truths which have since been confirmed and elucidated by Phrenology, in a manner that evinces, on his part, extraordinary depth and perspicuity of intellect, combined with the highest moral qualities. The "Moral Faculties," mentioned in his "Inquiry," appears to me to comprehend nearly the three moral sentiments of Benevolence, Veneration, and Conscientiousness, treated of by Phrenologists, each of which is manifested by means of a particular organ, and is influenced by its condition of health or disease; and if the following pages be perused with this explanation in view, the close approximation of Dr. Rush's remarks to the doctrine of Phrenology, will be easily recognised. In many details he differs from, and falls short of views of Phrenologists, but in the general conclusion maintained by him, that physical causes influence the moral faculty, the coincidence is complete. I have not been able to find this "Inquiry" printed separately from Dr. Rush's general works; and as it will probably prove interesting to many persons who are not in possession of these volumes, I have been induced to present it in this form to the citizens of the United States. Although all the views contained in it may not have been supported by subsequent investigations, there is so much of sagacity in the author, and of truth in his conclusions, that America may be justly proud of the genius of her son."

We have not the necessary space for the whole of this interesting production in our present number. The remainder shall appear in our next:

By the moral faculty I mean a capacity in the human mind of distinguishing and choosing good and evil, or, in other words, virtue and vice. It is a native principle, and though it be capable of improvement by experience and reflection, it is not derived from either of them. St. Paul and Cicero give us the most perfect account of it that is to be found in modern or ancient authors. "For when the Gentiles (says St. Paul,) which have not the law, do by nature the things contained in the law, *these*, having not the law, are a *law* unto themselves, which show the works of the law written in their hearts, their consciences also, bearing witness, and their thoughts

the meanwhile accusing, or else excusing, another."*

The words of Cicero are as follow: "Est igitur hæc, judices, non scripta, sed nata lex, quam non didicimus, accepimus, legimus, verum ex natura ipsa arripuimus, hausimus, expressimus, ad quam non docti, sed facti, non instituti, sed imbuti sumus."† This faculty is often confounded with conscience, which is a distinct and independent capacity of mind. This is evident from the passage quoted from the writings of St. Paul, in which conscience is said to be the witness that accuses and excuses us of a breach of the law written in our hearts. The moral faculty is what the schoolmen call the "regula regulans;" the conscience is their "regula regulata;" or, to speak in more modern terms, the moral faculty performs the duty of a judge. The moral faculty is to the conscience, what taste is to the judgment, and sensation to perception. It is quick in its operations, and like the sensitive plant, acts without reflection, while conscience follows with deliberate steps, and measures all her actions by the unerring square of right and wrong. The moral faculty exercises itself upon the actions of others. It approves, even in books, of the virtues of a Trajan, and disapproves of the vices of a Marius, while conscience confines its operation only to its own actions.—These two capacities of the mind are generally in an exact ratio to each other, but they sometimes exist in different degrees in the same person. Hence we often find conscience in its full vigour, with a diminished tone, or total absence of the moral faculty.

It has long been a question among metaphysicians, whether the conscience be seated in the will or in the understanding. The controversy can only be settled by admitting the will to be the seat of the moral faculty, and the understanding to be the seat of the conscience. The mysterious nature of the union of two moral principles with the will and understanding is a subject foreign to the business of the present inquiry.

As I consider virtue and vice to consist in *action*, and not in opinion, and as this action has its seat in the *will*, and not in the conscience, I shall confine my inquiries chiefly to the influence of physical causes upon that moral power of the mind, which is connected with volition, although many of these causes act likewise upon the conscience, as I shall show hereafter. The state of the moral faculty is visible in actions, which affect the well-being of society. The state of the conscience is invisible, and therefore removed beyond our investigation.

The moral faculty has received different names from different authors. It is the "moral sense" of Dr. Hutchison; "the sympathy" of Dr. Adam Smith; the "moral instinct" of Rousseau; and "the light that lighteth every man that cometh into the world" of St. John. I have adopted the term of moral faculty from Dr. Beattie, because I conceive it conveys, with most perspicuity, the idea of a capacity in the mind of choosing good and evil.

Our books of medicine contain many records of the effects of physical causes upon the memory, the imagination, and the judgment. In some instances we behold their operation only on one, in others on two, and in many cases upon the whole of these faculties. Their derangement has received different names, according to the number or nature of the faculties that are affected. The loss of memory has been called "amnesia;" false judgment upon one subject has been called "melancholia;" false judgment upon all subjects has been called "mania;" a defect of all the three intellectual faculties that have been mentioned has received the name of "amentia." Persons who labour under the derangement, or want, of these faculties of the mind, are considered, very properly, as subjects of medicine; and there are many cases upon record, that prove that their diseases have yielded to the healing art.

In order to illustrate the effects of physical causes upon the moral faculty, it will be necessary *first* to show their effects upon the memory, the imagination, and the judgment; and at the same time to point out the analogy between their operation upon the intellecual faculties of the mind and the moral faculty.

1. Do we observe a connection between the intellectual faculty, and the degrees of consistency and firmness of the brain in infancy and childhood? The same connection has been observed between the strength, as well as the progress, of the moral faculty in children.

2. Do we observe a certain size of the brain and a peculiar cast of features, such as the prominent eye, and the aquiline nose, to be connected with extraordinarry portions of genius? We observe a similar connection between the figure and temperament of a body and certain moral qualities. Hence we often ascribe good temper and benevolence to corpulency, and irascibility to sanguineous habits. Cæsar thought himself safe in the friendship of the "sleek-headed" Antony and Dolabella, but was afraid to trust to the professions of the slender Cassius.

3. Do we observe certain degrees of the intellectual faculties to be hereditary in certain families? The same observation has been frequently extended to moral qualities. Hence we often find certain virtues and vices as peculiar to families, through all their degrees of consanguinity and duration, as peculiarity of voice, complexion, or shape.

4. Do we observe instances of a total want of memory, imagination, and judgment, either from an original defect in the stamina of the brain, or from the influence of physical causes? The same unnatural defect is sometimes observed, and probably from the same causes, of a moral faculty. The celebrated Servin, whose character is drawn by the Duke of Sully, in his Memoirs, appears to be an instance of the total absence of the moral faculty, while the chasm produced by this defect, seems to have been filled up by more than common extension of every other power of his mind. I beg leave to repeat the history of this prodigy of vice and knowledge. "Let the reader represent to himself a man of a genius so lively, and of an understanding so extensive, as to render him scarce ignorant of any thing that could be known; of so ready comprehension, that he immediately made himself master of whatever he attempted; and of so prodigious a memory, that he never forgot what he once learned. He possessed all parts of philosophy, and mathematics, particularly fortification and drawing. Even in theology he was so well skilled, that he was an excellent preacher whenever he had a mind to exert that talent, and an able disputant for and against reformed religion, indifferently. He not only understood Greek, Hebrew, and all the languages which we call learned, but also the different jargons, or modern dialects. He accented and pronounced them so naturally, and so perfectly imitated the gestures and manners both of the several nations of Europe, and the particular provinces of France, that he might have been taken for a native of all, or any, of these countries: and this quality he applied to counterfeit all sorts of persons, wherein he succeeded wonderfully. He was, moreover, the best comedian and the greatest droll, that perhaps ever appeared. He had a genius for poe-

* Romans, i. 14, 15.
† Oratio pro Milone.

try, and had wrote many verses. He played upon almost all instruments, was a perfect master of music, and sang most agreeably and justly. He likewise could say mass, for he was of a disposition to do as well as to know, all things. His body was perfectly well suited to his mind. He was light, nimb e, and dexterous, and fit for all exercsies. He could ride well, and in dancing, wrestling, and leaping, he was admired. There are not any recreative games that he did not know, and he was skilled in almost all mechanic arts. But now for the reverse of the medal. Here it appeared, that he was treacherous, cruel, cowardly, deceitful, a liar, and cheat, a drunkard and a glutton, a sharper in play, immersed in every species of vice, a blasphemer, an atheist. In a word, in him might be found all the vices that are contrary to nature, honour, religion, and society, the truth of which he himself evinced with his latest breath; for he died in the flower of his age, in a common brothel, perfectly corrupted by his debaucheries, and expired with the glass in his hand, cursing and denying God."*

It was probably a state of the human mind such as has been described, that our Saviour alluded to in the disciple who was about to betray him, when he called him "a devil." Perhaps the essence of depravity, in infernal spirits, consists in their being wholly devoid of a moral faculty. In them the will has probably lost the power of choosing,† as well as the capacity of enjoying moral good. It is true, we read of their trembling in a belief of the existence of a God, and of their anticipating future punishment, by asking whether they were to be tormented before their time: but this is the effect of conscience, and hence arises another argument in favor of this judicial power of the mind being d stinct from the moral faculty. It would seem as if the Supreme Being had preserved the moral faculty in man from the ruins of his fall, on purpose to guide him back again to Paradise, and at the same time had constituted the conscience, both in men and fallen spirits, a kind of royalty in his moral empire, on purpose to show his property in all intelligent creatures, and their original resemblance to himself. Perhaps the essence of moral depravity in man consists in a total, but temporary, suspension of the power of conscience. Persons in this situation are emphatically said in the Scriptures to "be past feeling," and to have their consciences seared with a "hot iron;" they are likewise said to be "twice dead," that is, the same torpor, or moral insensibility, has seized both the moral faculty and the conscience.

5. Do we ever observe instances of the existence of only *one* of the three intellectual powers of the mind that have been named, in the absence of the other two? We observe something of the same kind with respect to the moral faculty. I once knew a man, who discovered no one mark of reason, who possessed the moral sense or faculty in so high a degree, that he spent his whole life in acts of benevolence. He was not only inoffensive (which is not always the case with idiots), but he was kind and affectionate to every body. He had no ideas of time, but what were suggested to him by the returns of the stated periods for public worship, in which he appeared to take great delight. He spent several hours of every day in devotion, in which he was so careful to be private, that he was once found in the most improbable places in the world for that purpose, viz. in an oven.

6. Do we observe the memory, the imagination, and the judgment to be affected by diseases, particularly by madness? Where is the physican, who has not seen the moral faculty affected from the same causes! How often do we hear persons of the most delicate virtue utter speeches, in the delirium of a fever, that are offensive to decency or good manners! I have heard a well-attested history of a clergyman of the most exemplary moral character, who spent the last moments of a fever, which deprived him both of his reason and his life, in profane cursing and swearing. I once attended a young woman in a nervous fever, who discovered, after her recovery, a loss of her former habit of veracity. Her memory (a defect of which might be suspected of being the cause of this vice), was in every respect as perfect as it was before the attack of the fever.* The instances of immorality in maniacs, who were distinguished for the opposite character, are so numerous, and well known, that it will not be necessary to select any cases, to establish the truth of the proposition contained under this head.

7. Do we observe any of the three intellectual faculties that have been named enlarged by diseases? Patients in the delirium of a fever, often discover extraordinary flights of imagination, and madmen often astonish us with their wonderful acts of memory. The same enlargement, sometimes, appears in the operations of the moral faculty. I have more than once heard the most sublime discourses of morality in the cell of a hospital, and who has not seen instances of patients in acute diseases discovering degrees of benevolence and integrity, that were not natural to them in the ordinary course of their lives?†

8. Do we ever observe a partial insanity, or false perception on one subject, while the judgment is sound and correct, upon all others? We perceive, in some instances, a similar defect in the moral faculty. There are persons who are moral in the highest degree as to certain duties, who nevertheless live under the influence of some one vice. I knew an instance of a woman, who was exemplary in her obedience to every command of the moral law, except one. She could not refrain from stealing. What made this vice the more remarkable was, that she was in easy circumstances, and not addicted to extravagance in any thing. Such was her propensity to this vice, that when she could lay her hands upon nothing more valuable, she would often, at the table of a friend, fill her pockets secretly with bread. As a proof that that her judgment was not affected by this defect in the moral faculty, she would both confess and lament her crime, when detected in it.

9. Do we observe the imagination in many instances to be affected with apprehensions of dangers that have no existence? In like manner we observe the moral faculty to discover a sensibility to vice, that is by no means proportioned to its degrees of depravity. How often do we see persons laboring under this morbid sensibility of the moral faculty refuse to give a direct answer to a plain question, that related perhaps only to the weather, or to the hour of the day, lest they should wound the peace of their minds by telling a falsehood!

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* Vol. iii. p. 216, 217.

† Milton seems to have been of this opinion. Hence, after ascribing repentance to Satan, he makes him declare—

"Farewell, remorse; all good to me is lost!
Evil, be thou my *good*."

* I have selected this case from many others which have come under my notice, in which the moral faculty appeared to be impaired by diseases, particularly by the typhus of Dr. Cullen, and by those species of palsy which affect the brain.

† Xenophon makes Cyrus declare, in his last moments, "that the soul of man, at the hour of death, appears *most divine*, and then foresees something of future events."

10. Do dreams affect the memory, the imagination, and the judgment? Dreams are nothing but incoherent ideas, occasioned by partial or imperfect sleep. There is variety in the suspension of the faculties and operations of the mind in this state of the system. In some cases the imagination only is deranged in dreams, in others the memory is affected, and in others the judgment. But there are cases in which the change that is produced in the state of the brain, by means of sleep, affects the moral faculty likewise; hence we sometimes dream of doing and saying things, when asleep, which we shudder at, as soon as we awake. This supposed defection from virtue exists frequently in dreams, where the memory and judgment are scarcely impaired. It cannot therefore be ascribed to an absence of the exercises of those two powers of the mind.

11. Do we read, in the accounts of travellers, of men, who, in respect of intellectual capacity and enjoyments, are but a few degrees above brutes? We read likewise of a similar degradation of our species, in respect to moral capacity and feeling. Here it will be necessary to remark, that the low degrees of moral perception, that have been discovered in certain African and Russian tribes of men, no more invalidate our proposition of the universal and essential existence of a moral faculty in the human mind, than the low state of their intellects prove, that reason is not natural to man. Their perceptions of good and evil are in exact proportion to their intellectual faculties. But I will go further, and admit, with Mr. Locke,* that some savage nations are totally devoid of the moral faculty, yet it will by no means follow, that this was the original constitution of their minds. The appetite for certain aliments is uniform among all mankind. Where is the nation and the individual, in their primitive state of health, to whom bread is not agreeable? But if we should find savages, or individuals, whose stomachs have been so disordered by intemperance as to refuse this simple and wholesome article of diet, shall we assert that this was the original constitution of their appetites? By no means. As well might we assert, because savages destroy their beauty by painting and cutting their faces, that the principles of taste do not exist naturally in the human mind. It is with virtue as with fire. It exists in the mind, as fire does in certain bodies, in a latent or quiescent state. As collision renders the one sensible, so education renders the other visible. It would be as absurd to maintain, because olives become agreeable to many people from habit, that we have no natural appetites for any other kind of food, as to assert that any part of the human species exist without a moral principle, because in some of them it has wanted causes to excite it into action, or has been perverted by example. There are appetites that are wholly artificial. There are tastes so entirely vitiated, as to perceive beauty in deformity. There are torpid and unnatural passions. Why, under certain unfavourable circumstances, may there not exist also a moral faculty, in a state of sleep, or subject to mistakes?

The only apology I shall make, for presuming to differ from that justly celebrated oracle,† who first unfolded to us a map of the intellectual world, shall be, that the eagle eye of genius often darts its views beyond the notice of facts, which are accommodated to the slender organs of perception of men, who possess no other talent than that of observation.

It is not surprising, that Mr. Locke has confounded this moral principle with *reason*, or that Lord Shaftesbury has confounded it with *taste*, since all three of these faculties agree in the objects of their approbation, notwithstanding they exist in the mind independently of each other. The favorable influence, which the progress of science and taste has had upon the morals, can be ascribed to nothing else, but to the perfect union that subsists in nature between the dictates of reason, of taste, and of the moral faculty. Why has the spirit of humanity made such rapid progress for some years past in the courts of Europe? It is because kings and their ministers have been taught to *reason* upon philosophical subjects. Why have indecency and profanity been banished from the stage in London and in Paris? It is because immorality is an offence against the highly cultivated *taste* of the French and English nations.

It must afford great pleasure to the lovers of virtue, to behold the depth and extent of this moral principle in the human mind. Happily for the human race, the intimations of duty and the road to happiness are not left to the slow operations of doubtful inductions of reason, nor to the precarious decisions of taste. Hence we often find the moral faculty in a state of vigour in persons, in whom reason and taste are in a weak, or in an uncultivated state. It is worthy of notice, likewise, that while *second* thoughts are best in matters of judgment, *first* thoughts are always to be preferred in matters that relate to morality. *Second* thoughts, in these cases, are generally parleys between duty and corrupted inclinations. Hence Rousseau has justly said that "a well regulated moral instinct is the surest guide to happiness."

It must afford equal pleasure to the lovers of virtue to behold, that our moral conduct and happiness are not committed to the determination of a single legislative power. The conscience, like a wise and faithful legislative council, performs the office of a check upon the moral faculty, and thus prevents the fatal consequences of immoral actions.

An objection, I foresee, will arise to the doctrine of the influence of physical causes upon the moral faculty, from its being supposed to favor the opinion of the *materiality* of the soul. But I do not see that this doctrine obliges us to decide upon the question of the nature of the soul, any more than the facts which prove the influence of physical causes upon the memory, the imagination, or the judgment. I shall, however, remark upon this subject, that the writers in favor of the *immortality* of the soul have done that truth very great injury, by connecting it necessarily with its *immateriality*. The immortality of the soul depends upon the *will* of the Deity, and not upon the supposed properties of spirit. Matter is in its own nature as immortal as spirit. It is resolvable by heat and mixture into a variety of forms, but it requires the same Almighty hand to annihilate it, that it did to create it. I know of no arguments to prove the immortality of the soul, but such as are derived from the Christian revelation.* It would be as reasonable to assert that the basin of the ocean is immortal, from the greatness of its capacity to hold water; or that we are to live for ever in this world, because we are afraid of dying; as to maintain the immortality of the soul, from the greatness of its capacity for knowledge and happiness, or from its dread of annihilation.

I remarked, in the beginning of this discourse, that persons who are deprived of the just exercise of memory, imagination, or judgment, were proper subjects of medicine; and that there are many cases upon record which prove, that the diseases from the

* Essay concerning the Human Understanding, book i. chapter 3.

† Mr. Locke.

* Life and immortality *are* brought to light *only* through the gospel. 2 Tim. i. 10.

derangement of these faculties have yielded to the healing art.

It is perhaps only because the diseases of the moral faculty have not been traced to a connection with physical causes, that medical writers have neglected to give them a place in their systems of nosology, and that so few attempts have been hitherto made to lessen or remove them, by physical as well as rational and moral remedies.

I shall not attempt to derive any support to my opinions, from the analogy of the influence of physical causes upon the temper and conduct of brute animals. The facts which I shall produce in favor of the action of these causes upon morals in the human species, will, I hope, render unnecessary the arguments that might be drawn from that quarter.

I am aware, that in venturing upon this subject I step upon untrodden ground. I feel as Æneas did, when he was about to enter the gates of Avernus, but without a sybil to instruct me in the mysteries that are before me. I foresee, that men who have been educated in the mechanical habits of adopting popular or established opinions will revolt at the doctrine I am about to deliver, while men of sense and genius will hear my propositions with candour, and if they do not adopt them, will commend that boldness of inquiry, that prompted me to broach them.

I shall begin with an attempt to supply the defects of nosological writers, by naming the partial or weakened action of the moral faculty, MICRONOMIA. The total absence of this faculty I shall call ANOMIA. By the law, referred to in these new genera of vesaniæ, I mean the law of nature written in the human heart, and which I formerly quoted from the writings of St. Paul.

In treating of the effects of physical causes upon the moral faculty, it might help to extend our ideas upon this subject, to reduce virtues and vices to certain species, and to point out the effects of a particular species of virtue and vice; but this would lead us into a field too extensive for the limits of the present inquiry. I shall only hint at a few cases, and have no doubt but the ingenuity of my auditors will supply my silence, by applying the rest.

It is immaterial, whether the physical causes that are to be enumerated act upon the moral faculty through the medium of the senses, the passions, the memory, or the imagination. Their influence is equally certain, whether they act as remote, predisposing, or occasional causes.

CAVIGLIA THE ANTIQUARY.—I had him to breakfast two or three days ago at Cairo, and I had a long confab with him before that. Living, as he had done, so solitary, I should rather say, in such society as that of the old Pharaohs of Egypt, their pyramids his home, and that strange enigma of a sphinx his fellow-watcher at their feet, he has become, to use his own expression, "tout-a-fait pyramidal" in dress, feature, manner, thought, and language. His history is very curious. "As a young man," he told us this evening, "je lisais Voltaire, Jean Jacques, Diderot—et je me croyais philosophe" he came to Egypt—the Pyramids, Moses, and the Holy Scriptures converted him, "et maintenant," said he, "je suis tout Biblique."—*Lord Lindsay's Letters on Egypt.*

MAGNETISM.—The St. Louis New Era contains an account of some interesting experiments in animal magnetism, lately made in that city. Several incredulous gentlemen declared themselves perfectly convinced so far as concerned the *facts*. Judge M'Clean, of Ohio, is said not only to be a believer, but a successful experimentalist.

GALVANISM TO REMOVE CATARACT.—The London Physicians are making successful experiments for removing cataracts from the eyes by galvanism. It is asserted that several eminent physicians are engaged in the inquiry, and a good deal of excitement has already been created by the little that has been achieved by the aid of this singular agent.

A CURIOUS PIECE OF ANTIQUITY has just been brought to light in Egypt, being a picture or tableau illustrating, with remarkable fidelity, an interesting portion of Mosaic history. It was discovered in the tombs of Beni Hassen, near Cairo, and represents the arrival of the brethren of Joseph in Egypt—Joseph being exhibited in the costume of an officer of State, in the act of presenting his brethren to the Viceroy of the reigning sovereign, in whose tombs the tableau was found."

WHO CAN SOLVE THIS PROBLEM?—Fill a wine glass to the brim with water, or if possible raise it in the glass even higher than the edge, by letting one drop fall at a time until the water presents a convex surface. When this is done, drop into the glass as many common pins as will fill it, and the water will not overflow. This simple experiment may be easily tried; but I have never seen it explained.—Water is compressible in a wine glass, and hence the water in the glass remains as it was before the pins were put in.

THE MAGNET.

NEW YORK, NOVEMBER, 1842.

ERROR.—The author of the article in our last, headed "*Remarkable Phenomena,*" is O. K. SAMMIS. The proof was not corrected by the printer.

PHRENO-MAGNETIC SOCIETY IN CLINTON.—It affords us much pleasure in being able to announce the formation of another Phreno-Magnetic Society, as the following will shew:—

Clinton Seminary,
Clinton, Oneida Co. N.Y., Sept. 26, 1842.

Sir,—You are hereby respectfully informed, that at a meeting of the Phreno-Magnetic Club, held at their session room in this Seminary, on the evening of the 21st instant, you were unanimously elected an Honorary Member of said Society.

By order and in behalf of the Society,
I subscribe myself, yours, &c.
In search of truth,
DANIEL S. HEFFRON, Secretary.

Rev. La Roy Sunderland.

POLARITY OF THE HUMAN SYSTEM.

One of the most singular properties of living bodies, is their power of producing their own heat. Some of them, we know, develope *electricity* and light; and they possess the power of resisting heat, of a much higher temperature than their own. Most persons have noticed the sparks which are often emitted from the hair of a cat, when it is rubbed in very cold weather; and a similar phenomenon is also seen, on taking off flannel drawers, &c. from the human body.

A steel needle, plunged into a nerve, becomes *magnetic;* and on being withdrawn, it is found to have the

power of attracting light substances. And that portions of the human system are often *attracted* and *repelled* by metallic substances, is a fact well known.

Muller affirms, that efficient galvanic piles may be formed from organic animal substances, without the use of metals. Wienholn states, that he has seen sparks obtained by bringing the divided end of two nerves together.* The electrical properties of the torpedo, and a species of eel, are also well known. The *gymnotus*, for instance, it would seem, possesses a complete galvanic battery. Two troughs are found on each side of the spine, separated from each other by a ligament extending the whole length of the fish; and the resemblance of this apparatus to the galvanic pile, is certainly very remarkable.

Now, if it be once admitted that animal bodies possess the power of generating and evolving electricity, or magnetism, then it must follow, that the laws which govern these forces must be, more or less, applicable to living bodies.

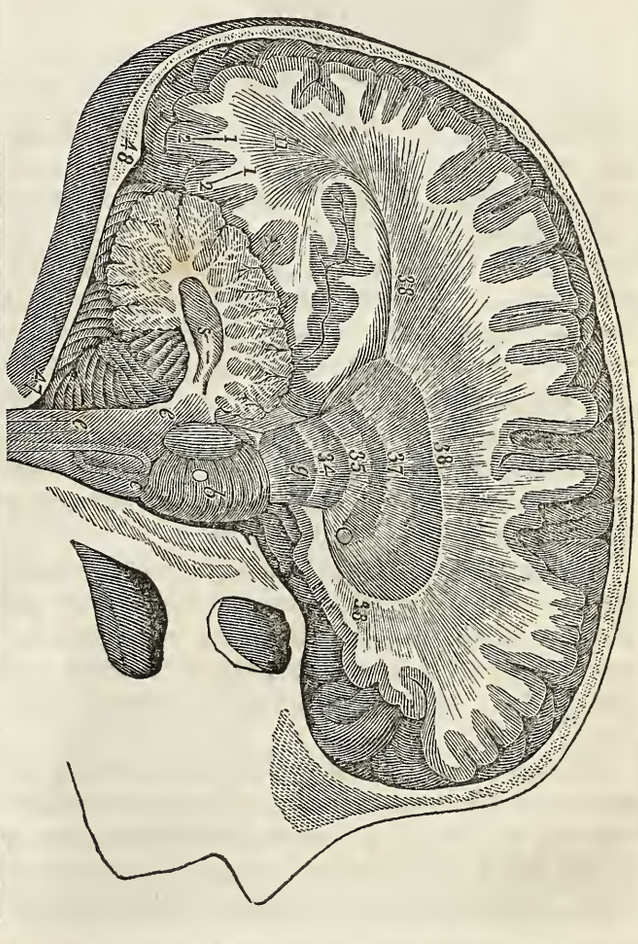
We have before alluded to the difficulties which every where meet us, in our attempts to describe the magnetism of the human system. For, though we think we have some tolerable understanding of this subject, yet we must not forget, that most of our readers are not familiar with its laws; and that, as it is so entirely new, and so every way different from preconceived notions of our nature, that it becomes exceedingly difficult to find the terms by which we may succeed in making ourselves sufficiently understood, when speaking of its various phenomena.

Previous works, give little or no light on this subject. True, a knowledge of human physiology will very much assist us, in arriving at a knowledge of what we denominate man's magnetic nature; and so will a knowledge of what we call terrestrial or mineral magnetism, or electricity. But then, human magnetism differs from all other branches of science. It is governed by laws of its own, and presents phenomena which cannot be wholly explained by what we know of other subjects. Nor does language, indeed, seem to furnish the appropriate terms for describing these phenomena; and hence, we are not surprised that a few of our readers have found it difficult to understand the precise meaning which should be attached to some of the language we have been compelled to use in describing these new and wonderful phenomena. If we apply old terms to new things, or new terms to old facts, the difficulty is the same. Nor is it strange, that language does not seem to furnish the necessary words for describing what has never, heretofore, been known to have an actual existence. For though it is some years since the human brain was supposed to be subject to galvanic laws, yet, we believe that nothing like the experiments by which we have, as we think, demonstrated its polarity, had ever been known, until they were commenced by us more than a year ago.

Perhaps, however, we should not use the word *demonstrated*, in the last sentence, above. But we will say, that they go far towards demonstrating this assumption; and all will probably admit, that the natural appearances of portions of the human brain, on dissection, as well as the various phenomena we have produced by operating on the living subject with a common steel magnet, and otherwise, could not be so satisfactorily explained in any other way, as by admitting our assumptions with regard to its *polarity*.

When describing the phenomena of mineral or terrestrial magnetism, the term *polarity* is understood to signify "that quality of a body, in virtue of which peculiar qualities reside in certain *points*," which repel or attract the magnet. Certain substances, for instance, when electrified, acquire the properties of *attracting* or *repelling* other bodies, from certain centres or *points*, which are called *poles*. These poles are found to correspond with the north and south poles of the earth, depending on the manner in which the substances are galvanised, and are, like them, *positive* and *negative;* and when both are of the same kind, they repel each other, or when of opposite kinds, they attract each other—that is, the forces which tend to or from these *points*, attract or repel, as the case may be. These forces of *attraction* or *repulsion*, or whatever else they may be called, pervade all matter, animate and inanimate, as far as we know, throughout the universe of God.

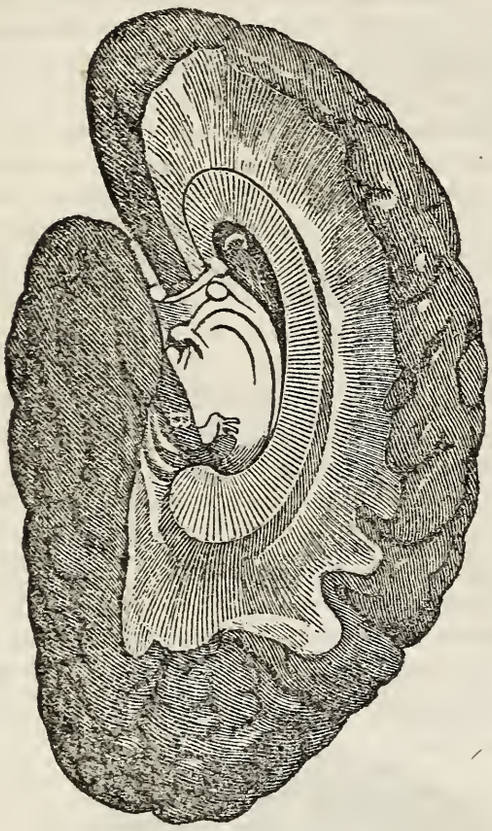
Those of our readers who desire to extend their knowledge of this subject, are referred to the article on Magnetism in the *Encyc. Metropolitana; Demondferrand's Manual;* the Memoirs of *Oersted*, *Orago*, and *Farraday*, and to the recent work of Dr. Henry H. Sherwood, entitled, "The Motive Power of Organic Life," from which the following illustrations are taken.



* A lady whom we cured of a most severe attack of neuralgia, was often known to have noises in the front part of her head, which sounded exactly like the discharge of electrical sparks. And we know another lady in this city, who, when indisposed a year or two since, gave off sparks from her body, whenever she was approached by the physician who attended her. She was, at the time, partially deranged.

The above represents a perpendicular section of the brain, divided near the mesial line. Observe the white, or medullary substance, *radiating*, as seen in the plate, from the base of the brain, into its convolutions, the folds of which sink down into the white substance, generally from a line to an inch deep. Nos. 11, 34, 35, 37, 38, are the cerebral fibres, which originate in the medulla oblongata, and expand into the convolutions.

A great portion of these fibres pass to and through the ganglion in their course to the convolutions, from which another set of fibres *converge* through the white substance to the centre of the brain.



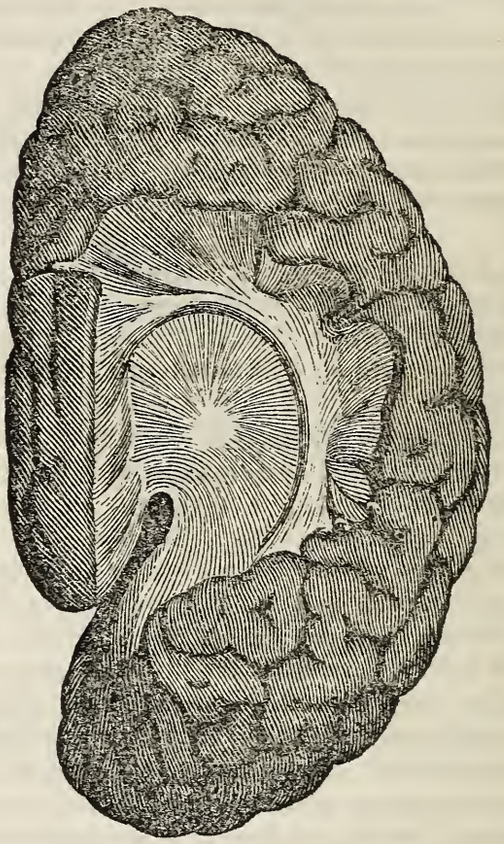
This plate, as well as the others, the reader will notice, is turned up, for the purpose of getting it into our columns. It gives a beautiful view of the *inside* of the right hemisphere of the brain, with the convolutions cut away, in order to exhibit the *converging* fibres from the convolutions; a section of the great inferior ganglion is removed, which shews its white color, as you see, in strong contrast with the dark, reddish, gray color of the great superior ganglion, enclosed between it and the front part of the corpus collosum.

The corpus collosum extends anteriorly and posteriorly beyond the radiated portions. Its thickness at both extremities is greater than in the middle.

The fibres which compose its folds, proceed, evidently, from the convolutions which form the most anterior and posterior parts of the two hemispheres, which communicate with the great cerebral ganglions by means of a superficial band, or layer, called the semi-circular tape-worm.

Nothing, says Spurzheim, can be easier, than, by dissection, to prove the two orders of cerebral fibres, the *diverging* and *converging;* and to show that the mass, or bundle, called corpus collosum, belongs to the *converging* order. Their direction is, therefore, entirely different from the bundles of fibres constituting either of the two great cerebral ganglions.

The *converging* fibres, like the *diverging* ones, before described, are *double:* one set of each is connected with the surface of the brain through the ash-colored substance of the convolutions, and the other with the surface of the ventricles, as is seen, also, in the plate below.



The opposite ends of the *converging* fibres are connected with the great cerebral ganglions, while the opposite ends of the *diverging* fibres are connected with the extending and contracting muscles, and with the serous and mucous surfaces of the different parts of the body. Dr. Gall and Mr. Spurzheim, both affirm, that the same nervous fibres do not go to the muscles and skin, and that the spinal marrow consists of nerves both of motion and feeling.

Physiognomy.—We have been much interested, recently, in the details given us by Dr. James W. Redfield, of Watertown, N. Y., of discoveries which he thinks he has made in Physiognomy. He traces a correspondence, not merely between the muscles of the face and the developments of the brain, but also in the bony structure of the entire system. Some of his assumptions agree with the results of our experiments, which have demonstrated the sympathetic points of the mental organs which are located in the face. Dr. Redfield has marked a bust for us, which we design to have engraved for the Magnet.—Dr. R. thinks he has made an important discovery, also, of medical properties in different plants, demonstrating that one plant, for instance, acts on one organ, and another on another. We hope he will favour our readers with a full account of his assumptions, in a future number of the Magnet. We believe him to be an intelligent, honest inquirer after truth; and whatever he communicates on these subjects, will be worthy of consideration.

MR. BRAID'S THEORY.

We have been amused to see with what avidity some of the papers have published what purports to be an explanation of the Magnetic sleep, by a man whom Dr. Elliotson pronounces "a most vain and swaggering mechanic named Braid," of Manchester, England. The account is from the Liverpool Chronicle. The following is an extract:—

"Mesmerism has, for some years, amused and bewildered the lovers of the marvellous. Ridiculed as mere illusion or delusion, it has, nevertheless, perplexed the scientific; its effects are too palpable to be denied, but any rational solution of the cause or causes in which they have originated has hitherto eluded detection. The honor of unveiling this mystery was reserved for Mr. James Braid, an eminent surgeon in Manchester, who having witnessed the recent experiments of Monsieur Lafontaine, in the Athenæum of that town, determined, if possible, to bring the system to the test of physiological and anatomical principles. This gentleman, having satisfied his own mind that he could produce the phenomena without personal contact, and even induce sleep when in a different room from the person to be thrown into a state of somnolency, announced a public lecture on the subject, which he delivered at the Manchester Athenæum, on Saturday last, before seven hundred persons

Mr. Braid first placed on a table a common black wine bottle, in the mouth of which was a cork having a plated top. The individual on whom the experiment was to be performed was seated on a chair, and directed to gaze intently at the cork without winking or averting the eyes. The cork was about two feet from the person operated upon, whose head was inclined backwards, forming with the object an angle of about forty-five degrees. In this position he remained abou. five minutes, when profound sleep was produced."

And having succeeded in producing sleep, by this process, Mr. Braid, it is said, then proceeded to give what he considered the *rationale* of his discovery! It was, in substance, as follows:—

The artificial mode of producing sleep is to fatigue the rectus and levator muscle of the eye, which is effected by a continuously strained and intent gaze at an object viewed under an acute angle. Under such circumstances, the irritability of those muscles becomes exhausted, as well as the irritability of the optic nerve; giddiness ensues, a mist rises up before the eye, and sleep ensues.

But the whole of Mr. Braid's *rationale* amounts to no more than what almost every person may have observed and felt when the attention has become fixed under certain circumstances. Any barber would bave given Mr. Braid as clear an account of cases of somnolency produced under the operation of shaving, and quite as *philosophical*, as that of his patient gazing on a wine bottle. That the magnetic sleep may be produced without any passes, and when at a distance from the patient, and when the patient has no knowledge of the *design* of the operator, we know, as we have produced it under these circumstances, and seen it done times without number. In the course of the experiments at the New York Museum, last October, this phenomenon was often produced, under circumstances which did not admit of deception. At one time, it was agreed between Prof.———, a distinguished scientific gentleman, and ourself, to deceive the patient in the following way. As she was perfectly blind, of course she could not see; and we proposed to Mr. Peale to make her *think* he was magnetising her; but instead of using the manipulations, he retired and sat down at some distance from her. The result was, she was asleep in about one minute, merely by his willing it. —At another time, Mr. H. N. Schieffelin, of this city was present, and it was proposed by him, without the patient's knowledge, that we should cause her to go to sleep, without communicating the design to her in any way. The experiment was perfectly successful. At another time, in the presence of a number of spectators, Dr. Channing, of this city, proposed to us to go some forty feet from the patient, and by a piece of paper cause her to wake up, and then to go to sleep again; and then to speak with another person, and finally, to rise from her seat while asleep, and come to the place where he was standing. All this was done, and under circumstances which absolutely precluded the possibility of collusion or deception. We have seen the patient go to sleep, many times, without any contact with the operator, and without knowing that he was present,—and even when he was not present. Indeed, we could fill our columns with accounts of these cases, and some of them performed by some of the first physicians in this city. Hence we cannot admit the claims of Mr. Braid. He may have produced a *kind* of sleep, to be sure, as every mother does for her infant; but, if the *will* of another person had nothing to do in inducing that state, and if the patient could not be made to obey the will of another person, while asleep, without speaking to him or touching him, then it was radically unlike the magnetic state, and this is susceptible of the clearest demonstration.

ELECTRO MAGNETISM.

ATTRACTION AND REPULSION.

BY P. CUNNINGHAM, ESQ.

WINDS.

The attractions and repulsions of the sun and moon will tend to produce a westerly moving atmospheric current, or in other words, an easterly wind, upon the parts of the earth most under the above influences; while the easterly motion of the earth will again tend to produce an easterly moving atmospheric current, or westerly wind, upon the parts less under the said influence. This seems the most reasonable explanation of the easterly winds prevailing toward both tropics under the name of trade winds, and the westerly winds prevailing beyond this point toward the poles. When two moveable bodies attract each other, the less must move towards the greater; and the moveable toward the immoveable, even though the latter be the smaller. The atmospheric atoms, therefore, being united with electro-magnetic atoms, and the latter being the power through which attraction and repulsion operate, the atmospheric atoms must consequently follow wherever the attractions or repulsions of their other constituents direct.

At the poles, the hot wind drawn from the tropics has its atomo-electricity expended, in summer, in assisting the sun-beams in thawing the ice and snow; and in winter again, in counteracting congelation of the water, when the sun's beams, no longer reaching these parts, admit a rapid freezing to go on.—The cold or magnetic air thus created by the abstraction of its electricity, is now attracted toward the equator by two electric forces, viz., that of the northern mass electric-belt, and that of the atomo-electricity poured down more powerfully by the sun upon

the regions there. These polar winds first approach the equator, seemingly from an almost due-east direction, a deception partly arising from the easterly motion of the earth; but closer to the equator, this seeming direction is from nearly due north and south. This easterly tendency is doubtless owing to the more rapid easterly rotation of the earth at the equator, in conjunction with the greater attraction of the electro-magnetic belt there.

The sun showering down his hot, perpendicular beams upon these cold, polar currents, they become in consequence rapidly heated, by which their particles are made to repel each other more powerfully, and thus rise into the upper regions, to be attracted toward the pole by the cold magnetic bodies there, having their place quickly supplied at the equator, by fresh polar atmospheric currents, destined to pursue a similar course. The greater attraction of the great northern *electric* belt for magnetic air, than the great southern magnetic belt, is the only reason I can divine for the southerly trade-wind blowing across the equator into the northern hemisphere for the greater part of the year, while the northerly trade-wind seldom reaches the equator.

Thus the equatorial regions are the great focus of attraction for winds, as well as all other moveable bodies, being the grand centre which the whole atmosphere of the earth, must in due course visit, to carry off its load of heat, to be deposited as it proceeds in its journey wherever there is a demand.—The cold currents from the poles to the equator, and the hot currents from the equator to the poles, in this way temper the extremes of climate as they move onward; the former moderating excess of heat, and the latter excess of cold; the former skimming along the earth's surface toward the equator, to cool down the hot regions in that direction, and the latter soaring at once into the heavens to avoid coming in contact with places already too hot. By these beautiful and harmonious motions of the wind, extensive countries are thus rendered habitable; which but for this wise provision of Providence, would be verging always upon a state of semi-congelation or semi-combustion.

The great electro-magnetic belt of the equator may thus be compared to a huge reservoir, into which the whole atmospheric ocean, surrounding the earth, must be successively poured and outpoured. The attraction and capacity too of this bason being always nearly the same, with no obstacle to the inflowing or the outflowing of the atmospheric current, a more general equilibrium of the quantity of atmospheric matter within its bounds will be the consequence; like in a water bason whose inlets and outlets are of the same capacity, the water always standing nearly at the same level in it. This seems the most probable cause of the barometer always standing at nearly the same level within the tropics—while outside of them, where the abov ecauses of atmospheric equilibrium do not exist, it is subject to so many fluctuations.

The rising of the mercury in the barometer with an easterly wind seems referable to its being pressed upon between two opposite forces (viz. of the earth moving eastward, and the atmosphere westward,) in *addition* to the force or weight of the downward attraction of the atmosphere by the earth;—and its falling during a westerly wind to the latter force *alone* operating, from the earth and the atmosphere then moving in unison together.

RAIN.

Electro-magnetic attractions and repulsions must influence the motions of the atmospheric vapours, as well as those of the winds; seeing that these influence every thing throughout space, from the mightiest mass to the minutest atom, from the positions and the motions of the universe of worlds, to the glittering sun-mote or the imperceptible particles of the falling dew.

For rain to descend in any country, it is not only necessary that moisture-bearing winds should blow over it, but that it should be in a *reverse* electric or magnetic state to that of the vapours. If the earth be in a hot electric state, and the vapours equally so, they will repel each other, and no rain consequently fall; and the same reasoning will apply when they are in an equally cold magnetic state. It is only therefore, when electricity or magnetism is in excess in either the vapours or the earth, that these vapours can be attracted to the latter in rain drops.

Moisture brought by the warm electric winds, is the common source of rain in the colder northern and southern latitudes, from the cold magnetic land there, attracting downward the hot electric moisture; while in the warmer latitudes, towards the tropics, the cold polar winds are the cause of rain, by their cooling down the hot vapours there, and thus enabling them to be similarly attracted by the earth. When winds move rapidly, this attraction is materially counteracted from their bearing the vapours along with them, and therefore slow-moving winds are, generally speaking, the best rain-bearers.

Wherever the earth contains a mass of non-electric conductors in its composition, or when it is brought into a bad conducting state by drought, rain seldom falls; and when it does, it seems to fall with reluctance. Throughout Lower Peru, where the whole soil is a mass of imperfect conductors, there is seldom more than a wintry drizzle; while after the earth has been dried up by long droughts in our own country, how often may be seen rain-clouds upon rain-clouds hovering over it, as if eager to shower down their watery wealth, eventually compelled to sail away to more inviting regions; and this tantalizing spectacle continued day after day until some electro-magnetic tempest broke the spell, and hurled down the moisture in as great abundance as it had before been scantily withheld.

Bodies are bad electric conductors in consequence of their inferior electric affinity, and hence cannot attract the vapours when the latter are in an electric state.

INFLUENCE OF THE SUN AND MOON ON WINDS AND RAIN.

I have already alluded to the influence of the sun and moon tending to cause an easterly wind in the more tropical-lying regions, over which their attractions and repulsions are chiefly exerted; and of the easterly motion of the earth tending to cause a westerly wind in the more polar-lying regions beyond, less under the influence of the sun and moon. Every change, however, in the state of the above luminaries with respect to the earth, will tend to produce a change of wind as well as of weather in some part of the latter.

The attraction of the sun with the earth is greatest in June, and his repulsion greatest in December, while both of these are least when he is moving in the neutral line with the earth about the months of March and September, the vernal and autumnal equinoxes.

That the moon exerts a powerful influence on the winds and the weather, has been a prevalent opinion in all ages, though many have been shaken in the belief of this power from observing that the changes of wind and weather as often took place during other periods of the moon, as at full and change, or in quarters; the period supposed to have most in-

fluence on the weather. The principal if not the only influence which the moon can in this way exert, must be through her attractions and repulsions with the earth, and the diminution of these when moving in the neutral line with the latter; so that as her periods of greatest attraction and greatest repulsion, and of moving in the neutral line, only correspond at distant periods with the phases above alluded to, hence the disappointment so generally met with by those anticipating changes of weather, from changes in the phases of the moon. Instead of full, change, and quartering, therefore, we must look to the periods of her greatest attraction and repulsion, and of moving in the neutral line, for the effecting of the above changes, the most likely periods for such to happen, being when her attractions and repulsions upon the earth are least, viz. at the time of her neutral line period with the latter, from the earth being now enabled to exert her own attractions more strongly upon the atmospheric particles and vapours on her surface, and to move them to and fro as she lists.

It is at this period, therefore, that rain is most likely to fall; a likelihood necessarily much increased should the sun be in the neutral line with the earth at the same time. Thus the moon, besides the agreeable light with which she enlightens the earth, exerts also a constant influence over the winds and the vapours on the latter's surface, conferring thereby a more pleasing variety of climate by the changes to which she gives rise; while being propelled by the sun alternately from one hemisphere to the other, as summer approaches in that in which she reigns, she is thus enabled more effectually to control the violence of the wintry elements that might otherwise be productive of the most disastrous results to both agriculture and navigation.

The attractions and repulsions of the sun being, however, more powerful, as well as more extensive, than those of the moon, and the period of his moving in the neutral line being much longer also, consequently his attraction and repulsion will exert a greater influence upon the winds and weather than those of the moon; while his longer movement in the neutral line with the earth, will give the latter more time to exert her attractions, as well as more power of carrying them into effect, from the influence of the sun being now paralyzed. Hence the hurricane season in the northern tropics, commences as the sun begins to decrease his repulsion with the earth; and that in the southern tropics, as he begins to decrease his attraction, when slackening as it were his bridle rein upon her; and hence also the violent gales and rains which the equinoxes produce when he has thrown the reins upon her neck, and allowed her thus to wanton with the winds and waters at will.

The sun vibrating with the southern hemisphere of the earth will naturally exert a more powerful influence over the winds and the vapours there than in the northern hemisphere, while the moon (as I am led to believe,) vibrating principally with the latter, will exert a greater influence in the northern hemisphere than in the southern. This will apply, however, chiefly to their attractions and repulsions; because when moving in the neutral line both hemispheres must be nearly similarly influenced.

PERIODICAL CHANGES.

The weather is subject to periodical changes, extending over a series of years, too regular in the extent of duration, and their returns, to be the work of chance; a series of dry years of weather being usually succeeded by a series of years of rainy weather, and these again by a series of years of moderate seasons, if such have not already intervened between; each series generally extending over a period of from two to three years.

These periodical changes, though much more marked in the tropics and latitudes bordering thereon where the sol-lunar influence is greatest, are still sufficiently apparent in the more polar regions.—Their continuance for a series of years implies their causes to proceed from bodies continually operating upon the earth, and these bodies are in all likelihood the sun and moon. The influence of the moon in fact, must be generally prejudicial to the descent of rain upon the earth, from her counteracting more or less the attractions of the latter upon the vapours.—This influence of the moon upon the vapours is so well known indeed to old seamen, as to have generated an expression among them during hazy weather, of "Wait till the moon rises, and she will soon eat up the fog;" a result I have often witnessed from the moon's rising.

Her influences, therefore, upon the seasons, as it is found to be upon the tides, will necessarily be greater in proportion as the tropic circle in which she moves is approached, and consequently, greatest of all within the latter; so that as we progress from the tropics, the season must be more uniformly moist, and *vice versa*, as we approach them more uniformly dry; giving thus to the tropical latitudes a climate of great extremes, corresponding to the great extremes of the sun and moon's influences there.—When we contemplate, however, the diverse capabilities of the sun and moon in raising or depressing the ocean-tides according to their relative positions with each other, we may consequently admit similar diverse capabilities of their relative positions in influencing the nature of the seasons as to dryness or moisture. The periods, however, of dry, of rainy, and of moderate seasons, continuing over a series of years, we must not, therefore, look for the causes of the above in the ordinary rapid changes in the relative position of the sun, moon, and earth taking place daily, monthly, and yearly, and prominently conspicuous to all; but in those slower changes, remarked only by the astronomical eye, extending over a series of years, viz. the slow westerly movement of the lunar points of greatest attraction and repulsion with the earth, by which they complete a westerly revolution from the sun to the sun again in a period of rather more than nine years. Now, as the above lunar points are each in conjunction or opposition alternately with the sun once during the said nine years, and the lunar neutral line or equinoctial points twice in conjunction and opposition with him in the same period also, four great epochs thus take place in each nine years' revolution, at a distance of two years and four months from each other, in which great changes in the seasons are likely to be brought about.

As the attractive and repulsive influences of the sun and moon, through the medium of their electro-magnetic zones, must necessarily be of a similar nature; therefore, the only difference between them will naturally be in the greater body possessing more of this influence than the lesser; and hence the influences of the moon's positions upon the earth, in affecting the weather, will be best illustrated by a reference to those of the sun. Thus, gales of wind and heavy rains being the usual result of the sun's movement in the neutral line at the equinoxes, in the extra-tropical regions, we may consequently infer, that when the moon's bi-monthly equinoxes take place, at the period of her being in alternate conjunction and opposition with the sun, heavier gales and rain may be anticipated in the above extra-tropical regions. The amount of rain, however, will necessarily depend upon the winds thus produced blowing from the sea or from the land; so that the

vernal equinox winds in the northern hemisphere being usually easterly, and the autumnal equinox winds westerly, this reversion of wind consequently tends to cause drier springs and wetter autumns in northern Europe than in northern America, and wetter springs and drier autumns in the latter than the former, from the west being the rain wind in the one, and the east the rain wind in the other. In the southern hemisphere, however, the equinoctial winds blow from the east at the northern autumnal equinox, and from the west at the vernal, though still corresponding in their designation to those of the north, from the spring and autumn months of the latter, being the autumn and spring months of the former. The hurricane and rain months again, in the northern tropic, taking place while the sun is relaxing his attraction upon the earth, and those in the southern hemisphere when he is relaxing his repulsion; we may, therefore, infer also, that should the moon be relaxing at the same time her attraction on the one hand or her repulsion on the other, when either in opposition or conjunction with the sun, heavier winds and rains than usual will take place in the above respective latitudes. Should the above views be correct, there would be a tendency to very rainy seasons every four and a half years, in the extra tropical latitudes, conferring two of such cycles of seasons upon them during the nine years' revolution of the moon. If the rainy seasons be ascribable to the lunar equinoctial points being alternately in conjunction and opposition with the sun, the dry seasons must be owing to the lunar points of extreme attraction and repulsion being alternately in opposition and conjunction with him also, or else one of these points only; producing thereby dry seasons at four years and a half, or nine years of interval from each other. But as both the above series of lunar points would be sufficiently near the sun to be influential for a longer period than a year, therefore the wet or the dry seasons might be continued over a two years' period, or even longer, particularly should other assisting causes contribute thereto.—The changes in the earth's axis, called her nutations, as well as her changes of polar parallelism, may tend to do this; their extent of period evidently showing their cause to be in the westerly revolution of the lunar points. Thus the latter is performed in a period of nine years, and the revolution in the moon's nodes, and in the earth's nutation, as well as the latter's changes of polar parallelism (if I can comprehend astronomical description aright), are completed in a period of about 19 years; the periods of the three last therefore, being rather more than double the period of the first, showing thereby, a connection between the whole. The coincidence, again, of the above with wet and dry seasons is very pointed; a series of dry seasons taking place about every ninth year in New South Wales, extending over a period of from two to three years, like those which have done so much mischief of late in the Cape Verds, Chili, and La Plata. In England, again, cycles of seasons have been noticed by observing men, corresponding closely to the above; the disastrous wet harvest of 1799 and 1816 pointing to a cycle of about eighteen years, nearly approximating to the eighteen years' revolutionary period of the nutations *. By a comparison of the position of the lunar points during the various years distinguished as very wet or very dry, a conclusion may be readily arrived at, whether the above lunar revolution influences the seasons or not, from the lunar points coinciding or not coinciding in the respective wet and dry years; while, if they do coincide, the particular position of the lunar points causing these seasons will be thereby ascertained.

The approach of the earth nearer to, or her recession farther from the sun than usual, will naturally cause a great change in the seasons. If, for instance, the earth should come in a direct line between any of the superior planets and the sun, while she is *moving toward* the latter, their repulsion will accelerate her onward motion, and thereby force her to a nearer approximation than usual with the sun; in consequence of which, she will be more powerfully repelled, and thus made to recede as proportionably far from the sun as she had been previously made to approach him. This will cause the southern summer to be hotter and southern winter colder than usual, on account of the nearer approximation of the earth's southern hemisphere to the sun in the former period, and its greater recession from him in the latter; while the same causes will render the northern summers colder and the northern winters hotter than usual, provided there be no increased angular motion of the earth, a circumstance not unlikely to happen. The accelerated motion of the earth, above spoken of, will necessarily render the atmospheric vapours less liable to be attracted by her, thus giving a tendency to drier years in both her hemispheres. When coming, however, in a direct line between any of the superior planets and the sun, while *receding* from the latter, her motion will be retarded instead of accelerated, as in the preceding case, and the reverse effects of the foregoing illustration consequently produced, neither approximating so near to, nor receding so far from, the sun as even in ordinary years; thus giving a tendency to moist temperate seasons throughout both hemispheres of the earth. But when the earth's motion has been either preternaturally accelerated or retarded, it will necessarily be some time before an adjustment therefore takes place, and hence the above seasons may be of some continuance, if not counteracted in the interim by the action of another passing planet. The inferior planets, Venus and Mercury, will of course, have a contrary action to the superior planets; the above actions of them being necessarily greatest when they are nearest the sun, and those of the inferior when they are farthest from him.

Variations of seasons, particularly as relates to heat and cold, are doubtless, however, frequently occasioned by an increase or diminution of the usual amount of heat radiated from the sun. The sun's aspect at rising or setting is indeed, frequently indicative of the temperature of the succeeding day; and when unusually pale, a cold, or at least, a cool day may be expected, and when of a fierce fiery heat, a hot day as well as a hot wind also, in countries subject thereto; the pale aspect evincing an unusual amount of magnetism, while the greater redness at rising and setting may be ascribed to the lesser atmospheric refrangibility of the red rays, admitting them thereby to be radiated to a greater distance over the earth before being bent down thereon to meet the human eye. The above subject is a most interesting one to the whole human race; as, by once attaining a knowledge of the *causes* producing the great changes in the seasons, wet, dry, and favourable years might be predicated with a considerable approximation to truth; by which the husbandman would be better able to suit his sowing to the seasons, and thus secure a sufficiency from the good years to supply the deficiency of the bad, while guarding against eventual loss in planting of seed in places where either the excessive rain or excessive drought might occasion the destruction of its product. Hence

* The present wet winter fully bears out the truth of the above cycle, while the nine years' cycle is similarly strengthened by severe westerly gales and high tides, resembling those of 1824, occurring during the present wet winter also.

the great benefit that would result from meteorological observations on the winds and rain, kept on various points of the globe; by which, from the comparisons together, and with the respective positions of the heavenly bodies at the time, a meteorological table of infinite value might eventually be appended to the almanac.

The atmosphere, the atmospheric vapour, and the weight of bodies, must be considerably influenced in the hemispheric neutral line, by the opposite attractions and repulsions of the hemispheric zones, between which they are placed, from the magnetic poles of the above bodies being attracted laterally by one hemisphere, and their electric poles laterally by the other, through which the poles of all bodies in this space would be changed from a vertical to a horizontal position with each other, and their movements consequently influenced thereby. This changing of poles by lateral hemispheric attraction is doubtless one of the causes of the almost incessant rains between the trade winds, both the hemispheric zones here uniting to attract downward the atmospheric vapours, from their joint attractions operating on both poles of the above particles; instead of one pole of these being attracted and the other repelled when acted on by one hemisphere only.

LIGHT.

The strong resemblance in properties between the rays of heat and light emanating from the sun, have led to a belief of some identity existing between their constituent principles. Both coincide in their ready transmission through transparent bodies, in their radiating in straight lines, and in being reflected and refracted by the same bodies at the same angles; while, wherever light enters heat enters also, so that to exclude the one you must exclude the other. The rays at the extreme edges of the rainbow fan, into which the sun-beam is refracted by the glass prism, are the red rays on the one hand and the violet rays on the other; the first of which I have previously demonstrated to consist principally of atomo-electricity, from their power of exciting heat, and of producing all the effects of electricity or heat on bodies; while the latter I have similarly demonstrated as being constituted principally of atomo-magnetism, from their exciting a magnetic power in bodies, as well as from their great affinity for oxygen, and being colder than the red rays.

As, however, all the sun's rays (even including the red and the violet) are more or less capable of exciting the sensation called heat, as well as of extracting oxygen from bodies, it may be reasonably inferred, therefore, that they are all composed of varied atomic proportions of these two bodies; magnetism prevailing toward the violet ray, and the electricity toward the red.

From the above, therefore, we may view the sun as a huge galvanic battery, pouring incessantly down his electro-magnetic rays upon the earth, for the vivification of every living substance thereon, as well as for the assisting in the completion of those great changes which it has been undergoing since its formation, with the wise view of making it a fitter nursery for the animal and vegetable creation which the beneficent Author of all has implanted upon it.

ANTHROPOLOGY.

THE NERVOUS INFLUENCE.

IDIOCY AND INSANITY.

I do not believe that the immaterial principle even of a lunatic or an idiot is in itself different from the spiritual part of a rational being; the same inherent powers exist in both, but the organ by means of which they *use* these powers is in an unnatural state. I am convinced that in both cases the fault lies entirely in the brain; the action of which is too feeble in the one, and too violent in the other.

CAUSE OF IDIOCY.

A laxative and defective organization of the brain may cause a total, or nearly total want of memory, by incapacitating it from repeating and concatenating the impressions it receives, and this might be sufficient to produce the phenomena of idiocy. The indispensable necessity of the faculty of memory is sufficiently apparent; for if our brain were not capable of repeating the impressions which the properties of material objects make upon it, it could only feel the sensation they produced at the time, and our knowledge would end at that point. Idiots cannot, I suppose, be totally deficient in this respect, for they are capable of perception, and they generally retain, in a greater or less degree, the impressions made by external objects;* but there always appears to be a defect in the brain, which incapacitates them in a great measure from forming *associations* of ideas.

The immaterial principle of the idiot must possess the inherent powers of feeling, understanding, and willing; but when the agent of the mind is imperfect, the proper development of its faculties must be impossible. The over exertion of an active mind has been known to produce idiocy, which shews that it may proceed from want of power in the brain, without any natural imperfection of the immaterial principle. In this case, there is a *loss* of nervous energy, from previous over excitement; while in the idiot by birth there is a natural deficiency of nervous power from a bad organization.

I should ascribe the phenomena of insanity to a cause precisely opposite to that of idiocy. In this case, the energy of the brain is *increased*, which is made evident by the accession of strength not only in the physical, but in the mental powers—these being deranged, but not *weakened*.† The vividness of the ideas is such as to overpower, in many cases, even the impressions made by material objects; the power of the imagination is prodigiously increased; the memory is stronger, and the associations more tenacious; but they are false, the old being broken, and new ones formed by the hurried and disordered action of the brain. If the derangement is protracted beyond a certain time, this new order of associations may become firmly established, and remain even after the brain is restored to a healthy state. The association of the ideas with the moral sensations is broken sooner than their concatenation with each other; for the first symptom of insanity is not an aberration of *judgment*, but an alteration in the feelings, inclinations, and habits of life.‡ I imagine that the phenomena of insanity are caused by an increased secretion of the nervous fluid, as idiocy is produced by its deficiency; or the portion of nervous fluid required for the functions of an internal organ may be *transferred* to the brain, while the general quantity remains the same, or is even diminished, as in palsy, which I have often seen accompanied with a morbid action of the brain, particularly affecting

* The CRETINS, in the valleys of Switzerland, have not, I believe, even this degree of intellect.

† According to the account of a recovered lunatic, he could, during a paroxysm of insanity, perform with ease certain mental operations which were impossible to him at other times.

‡ In canine madness, it is observable that the first symptom is a change in the *habits* of the animal; but he continues to *know* his master long after this.

the feelings. However it may be, the medical treatment required for the cure of mental derangement shews that it is of a physical nature, and the brain, upon dissection, exhibits the same appearance as in apoplexey, epilepsy, fever, and convulsions. Perhaps the state of idiocy might admit of medical treatment also, and the faculties of the idiot might be further developed, if the physical causes of imbecility were made the object of attention. It is my belief that, in insanity, the *intellectual* powers do not undergo any change; but that as we can only perceive and judge according to the impressions we *receive*, our perceptions and judgments must of course be erroneous, if the impressions are false, the associations altered, and the real experience lost. So far is the spiritual part from being diseased, that it acts as usual in consequence of its impressions and associations, whether false or true: for instance, no lunatic who mistakes his friend for a mortal enemy will caress and confide in him in consequence—no, he will distrust him as he would have distrusted the real object when in his senses. The man who fancied his legs were made of glass carefully protected them from every accident, and the man who thought himself of enormous bulk, refused to pass through a passage too narrow to admit a person of his imaginary bulk. But it would be endless to enumerate such cases. The lunatic retains the highest and most intellectual faculties, but in a state of inordinate action, overpowering those which are inferior, instead of operating by their assistance. The idiot, on the contrary, possesses only the lowest faculties, the others remaining undeveloped. In short, the phenomena these exhibit appear to me to be of an exactly opposite kind. They may be thus briefly enumerated:—the idiot possesses the powers of physical sensation and volition; of forming, and not associating ideas; a moderate degree of perception; little memory; and *no* imagination. The lunatic has a powerful imagination, vivid ideas, and a strong memory, except when its office is usurped by the imagination; an erroneous judgment, incorrect perceptions, false associations, and deceitful sensations. The moral sensations, which are wanting to the idiot, are intense or violent in the lunatic; the only point in which they agree is in the want of judgment, which the one has lost, and the other never possessed. In extreme old age, the natural tendency is to idiocy; for the faculties decay, not because the spiritual part of the individual has lost its attributes, but because the brain and nerves have lost their sensibility. Frequently the experience which belongs to age, and the coolness and self-possession produced by the moderation of the feelings, make a compensation for the diminution of the mental powers, and preserve the correctness of the judgment.

IMAGINATION.

The imagination reigns despotically in the insane mind, and is, thus uncontrolled, a fearful and dangerous power; but this faculty is productive of extensive good as well as evil, and, when in proper subjection, is one of the noblest attributes of the mind. It is the power of the brain to form new associations of nervous actions, and of the will and the judgment to direct its operations, that the human mind owes its capability of intellectual improvement, for if we only possessed the faculty of memory, and that the brain could only repeat impressions in the order in which it had received them, we could never overleap the iron boundary which would encircle our faculties.—The operations of the memory are certainly indispensable, and those of the imagination, without them, could only serve to make madmen; but memory alone could never produce talent. It is the power of the will over the imagination, which makes us responsible for our actions, for it enables us to form new associations of feelings and ideas, though indirectly and gradually, and also to contend with a present inclination, by representing other motives of action; it is in fact, the field of battle in which the conflict of reason and feelings takes place. It also enables us to diminish our mental sufferings, and to increase our mental pleasures, by its influence over the nervous system of the moral sensations; when we hope, the imagination represents the event we wish for, accompanied by the pleasing sensations that would attend its reality.—Fear is the reverse of this operation: brutes appear to be entirely destitute of imagination, which could only be productive of mischievous consequences, if not properly balanced by the other mental powers. The lunatic can never be considered as having sunk to a near level with the brute, though he is led by passion instead of reason, for insanity is characterized by wildness of imagination, and a *false*, not a *deficient* mental action. Neither can the immaterial principle of the idiot be compared to that of the brute. For it is inferior in appearance, and superior in reality; the unerring instinct, which supplies all deficiencies in the brute—and the well constituted brain, which gives to the higher orders a quick perception, and a strong memory, is productive of a decided superiority *practically* considered; but the immaterial principle of the idiot is endowed with faculties which only lie *dormant* owing to the imperfection of its material agent, and which the most perfect cerebral action could never develope in the brute, because they do not belong to its nature.

OBSERVATIONS ON THE JUDGMENT.

Judgment—a sound and cool judgment, perfectly free from the influence of passion, is the most valuable, and perhaps the most rare of qualifications. Talent abounds, but calm good sense as is scarce as it is precious. The strongest mental powers cannot secure us from the dangerous and often unperceived effects of our own feelings upon our understandings, and so apt are we to deceive ourselves, that we often fancy that our judgment is guided by a *reason*, when in fact it is influenced by a *motive*, and we think that our actions are the result of *one* motive, when we are unconsciously impelled by another. When the feelings are strong, they not only urge us to act in opposition to the reason, but they affect the operations of the faculty itself. This accounts for the errors of judgment, and especially the deficiency of prudence or practical judgment, often observable in individuals endowed with great mental powers, and consequently having the *natural capability* of perceiving clearly the consequences of actions. Brilliant talents, which result from a quick perception and a lively imagination, are partly owing to a rapid and energetic nervous action, and the same cause gives quickness to the feelings; consequently, though the judgment may be very clear in indifferent matters, it will be biassed in those which nearly affect the individual, owing both to the warmth of the feelings, and the natural hastiness of decision which attends this character.* But the spiritual part is formed to rule over the material principle, and though it is subjected to its influence in a certain degree, it is also gifted with the capability of resistance. Its distinguishing characteristic is power combined with intelligence; and the exertion of the power accord-

* The strength of the nervous action has, in my opinion, so important an effect upon the moral and intellectual character, that I intend devoting a chapter to the consideration of the subject.

ing to the direction of this intelligence, is the most imperious duty that is imposed upon us. The natural violence of the feelings must never be considered as an excuse for acting in opposition to the direction of the reason, for it is the trial that is allotted to us during our state of probation.

If the judgment is sufficiently strong to be of *practical* use, the feelings are distrusted, and are never allowed to influence our actions until they have obtained the approbation of their calm and impartial director: they are vigilantly watched during every operation of the mind; and the motives which may influence the conclusions of the reason in argumentation, as well as the resolutions with respect to the actions, are duly scrutinized. Under the mild authority of this intellectual director, the passions are hushed, and the prejudices and errors which naturally result from uncontrolled feelings are dispelled, the wishes and inclinations are restrained within bounds, and extremes of every kind are avoided. Indeed, this alone would be productive of beneficial and important consequences, for all that is good and all that is useful lies between opposite extremes.*

The subjugation of the feelings is the most difficult but the most glorious task that can be assigned to an ardent mind: the exertion, however painful, is amply repaid by advantages, both temporal and eternal. In a worldly as well as in a moral point of view, the possession of a steady well-regulated mind is the most desirable and useful of all qualities: those who would govern others, must first learn to rule themselves. The most effectual power is that which is gained over the mind, for actions then follow of course: but it is only the preponderance of spiritual power that can ensure spiritual dominion, and it is never obtained by those who are themselves in thraldom, and are both deceived and tyrannized by their own passions. Besides, a calm and temperate state of mind can alone enable us to acquire that knowledge of the human heart, which is one of the best guides to the judgment, for it is as impossible to discern the motives of others, when we look through the medium of our disturbed feelings, as it would be to distinguish objects through the clouds of sand raised by the whirlwind of the desert. By judging of the intentions of men according to their character, their situation, and their feelings, without allowing ourselves to be biassed by our own, we learn to understand their motives and to foresee their decisions, and by regulating our actions accordingly, we are enabled to influence those of others, and to avert many of the evils that may result from our relations with those that surround us. Unswayed by our own feelings, we harbour no prejudices, and while we make due allowance for the errors and weaknesses resulting from ignorance, mental infirmity, and all the circumstances that are adverse to the improvement of the mind, we tear off the veil which vanity throws over our own imperfections, and judge ourselves with stern and inflexible severity. Strong sense, therefore, secures to us a more certain and lasting influence over our fellow creatures than any other kind of power—but the advantages which it brings to its possessor are even greater than the empire we gain over the souls of men—for the power that is appointed to repress every violent emotion—to crush every rebellious feeling—to guard vigilantly every weak point of the heart—and to govern the inclinations and affections with a view to the benefit of man and the honour of God—produces, if firmly exercised, a temper of mind so calm, so equable, so independent of external circumstances, as nearly to resemble the unclouded felicity it is destined to enjoy in Heaven, when moral and physical pain shall have ceased to trouble us for ever.

* It may be objected, that the rule of steering between opposite extremes cannot be an accurate guide to the conduct, because it is impossible to define the *line* exactly, as it must be different in the opinion of different individuals, and that for the same reason it is useless as an argument; for what seems within the bounds of moderation in the judgment of one person, appears beyond it in the opinion of another. But I believe that such a rule is useful, both in conduct and in argument; for it appears to me to be subject to calculation I would place excess at the point in which the evil consequences predominate over the good: this point may be ascertained by examining consequences, and is not therefore so vague and indefinite as we imagine.

OBSERVATIONS ON THE WILL.

The conclusions I have drawn respecting the general operation of the mental faculties is, that their effect is to throw the mind into two states: viz. of *belief* as to *facts*, and of *determination* as to *actions*. The first is produced by *reasons*, the second by *motives*.

THE STATE OF WILLING PRODUCED BY THE MOTIVES.

Further, it appears to me that the mind can only be thrown into these two states, though the capability of doubting, disbelieving, etc. seems at first to contradict this opinion; but I consider *disbelief* as the belief of a different proposition, and *doubt* as either a suspension of judgment, in which the mind undergoes no change at all, or an *alteration* of belief in two opposite propositions. The same may be said of the state of *hesitation* respecting our actions.* Belief, as I have before observed, is influenced by reasons—actions, by motives. The reason that appears the strongest produces belief, and the strongest motive produces determination.

FREEDOM OF WILL.

It should seem, therefore, that the mind is brought to a state of belief and determination involuntarily; and indeed, as far as I can discern, the mere power of volition cannot, by its *direct* influence, throw the mind into any state whatever. If, however, we remained at this point, we might adopt an opinion as false as it is dangerous, as it would put an end to free agency, and consequently to moral responsibility. But, upon consideration, we shall find that the *previous* operations of the mind, which give preponderance to certain reasons and certain motives, are in a great measure influenced by the will; and it is there that the responsibility attaches. I believe that philosophers and religious moralists take up opposite opinions on the subject of free agency, and, as it seems, fly into opposite extremes. The necessity of belief in consequence of the reasons presented to the understanding, being reckoned a dangerous doctrine by the latter, they will not grant what must be evident to every metaphysician—but on the other hand, if philosophers imagine that they are free from moral responsibility in the adoption of *any* opinion, this notion must be equally incorrect. It must be acknowledged that an act of belief is considerably less subject to the will than a muscular action; but though the will may not be directly concerned in the production of belief, it has a large share in many of the operations which precede and which ultimately produce it—sometimes the responsibility may be traced very far, and must be sought in the habits and feel-

* I will here observe, that the changes of nervous action in doubt and hesitation are extremely fatiguing to the brain, and that the prolongation of this kind of operation has the effect of producing nervous diseases.

ings which have been formed at a time antecedent to the adoption of some particular opinion; these may indirectly influence our present decision. We know that we have the power of directing the course of our thoughts more particularly to certain considerations, both by direct and indirect means; of suspending our judgment, when it leads to immoral or irrational conclusions, by a proper conviction of our own ignorance and circumscribed power; of distrusting our own conclusions from the consideration that our feelings, our circumstances, and the particular turn of our own character, may influence us; of detecting and throwing off our prejudices and endeavoring to judge dispassionately; and of yielding with humility to a superior intelligent power.* This temper of mind will effectually secure us from adopting any notion destructive of sound morality even if its truth should seem to be demonstrated. The most powerful and enlightened human intellect cannot be an unerring guide, which is made sufficiently evident by the opposite opinions maintained by individuals of equal mental power, and even by the same individuals at different times. We must therefore, beware of trusting to its clearest conclusions, if they are incompatible with moral truth, for the principles of the latter are certain and immutable, while our opinions are changeable and erroneous. Without this conviction, an inquiry into the nature of free will might, from what I have observed, be dangerous as well as perplexing; but the most subtle metaphysical reasoning must, in the rationally pious mind, yield that God has made us *responsible agents*; that God is *perfectly just*, and consequently that he must have made us *free agents*.

PRECISE POINT AT WHICH THE WILL AND THE JUDGMENT OPERATE IN THE PERFORMANCE OF AN ACTION.

Leaving aside the degree of freedom which the will possesses, we may easily ascertain the precise point at which its power is exerted, as well as that of the judgment. In the performance of an action, we find first, that some *physical sensation*, or some *idea*, excites another idea combined with a mental feeling; this constitutes a *motive*, which acts upon the mind, and *inclines* it to a particular course of action, whether mental or muscular. It is at this point that the action of the will and the judgment are required. If we could only be influenced by a single motive, the will would be compelled to obey it, and this I imagine is the case with the lower order of brutes; but man is capable of being influenced by a variety of motives, and between the inclination and the action, the will calls them forward, and the judgment can form its decision; the ideas which constitute a decision of the judgment throw the mind into a state of *determination*, which is the state that must necessarily precede every voluntary action.—Hence it is evident, that whoever acts from the impulse of a moral or physical sensation, without the aid of the judgment, acts like the brutes.

MOTIVES.

With respect to the nature of the various motives, we may observe that the human mind has but one object of attainment, and that all the motives of our actions may be reduced to the wish of avoiding moral and physical good.* The same sentiment pervades the whole creation, the difference lying in the number and nature of the objects that are associated with these feelings of desire or aversion. The lower classes of animals have apparently no motive of action but the inclination for *physical* good and the aversion for *physical* evil. The higher classes are evidently gifted with some of the moral sensations, the gratification of which presents motives superior to physical sensation; for we may often observe that they have affections which prompt their actions in defiance of physical pain. But still, the motive, whether moral or physical, is present—it is the attainment of *present* satisfaction, or the escape from *present* suffering. The rational part of the creation has another set of motives of a more intellectual kind, which is the representation of *future* pain or pleasure by the operation of the imagination, and this may be so forcible as to render the motives of this class more powerful in the direction of the actions than those of the other. As actions must take their direction from the strongest motive, the addition of this set is of the highest importance, for it is the means by which we are enabled to oppose the impulse of the passions. How precisely is this constitution of the mind adapted to the situation of a being destined to a state of future reward or punishment, and made responsible for his actions! When passion and feeling strive against the conscience and the judgment, religion casts an eternity of happiness or misery into the scale, and the motives to virtue can then preponderate. The more intellectual and free from passion is the mental constitution, the more easily will the anticipation of future pain and pleasure overbalance the influence of present feeling, and the inclination for present gratification. I shall conclude by observing, that motives are the only means by which our minds can be controlled by others, for the immaterial principle is not subject to physical force. It is therefore free in proportion to its power of resisting the inducements held out by the moral and physical sensations.

OBSERVATIONS UPON THE DEPENDENCIES OF THE IMMATERIAL PRINCIPLE UPON MATTER.

The immaterial principle not only acts upon matter, but receives impressions from it, and operates by means of this principle.

ALL CREATED BEINGS MATERIAL.

It is my opinion that in this respect, all created beings are constituted alike, from the lowest, possessing only the faculties of sensation and volition, to the highest, endowed with the noblest intellectual powers. The privileges and perfections of a being untrammelled by matter, independent of sensations, and capable of acting without the aid of material organs, would, I think, be far beyond what appears on a first view, and I am inclined to believe, that even *Angels* are not unembodied spirits; that their frames, though perhaps pure as light itself, are still material in their nature, and that the Supreme and Eternal Spirit alone exists independent of matter. Indeed, any other supposition, in my apprehension, seems to diminish the distance between the Creator and his creatures. If I understand St. Paul rightly, our hopes for the future must be confined to the acquisition of a *better* body, not subject to disease or death, and possessed of more perfect organs; this

* At the same time we ought not to take an offence at the pertinacity with which others maintain an opinion different from our own, as if it only could proceed from an assumption of superior judgment; for whoever, examines metaphysically the causes of difference of opinion among mankind will readily perceive that it is impossible for all men to view the same object precisely in the same light.

* The preference which we give to the happiness of others, when we make a disinterested sacrifice, is no exception to the rule; for in this case, we derive more real satisfaction from the indulgence of a noble and elevated feeling than from the gratification of a selfish wish.

alone would increase our mental powers prodigiously, even supposing that no alteration were to take place in the immaterial principle. The strongest intellect is greatly dependent upon the perfection of its material organs, and may be incapable of using all its natural powers during its state of mortal existence, owing to a deficiency in this respect. The memory especially, which is an indispensable assistant in the performance of the mental operation, is dependent upon the constitution and actual state of the brain. The feelings and inclinations also, which in a great measure constitute the character of an individual, are partly dependent upon the physical constitution, and a perfect body may not only exempt us from disease, and death, but enlarge our mental faculties by the superior activity and perfection of its organs, while it is the seat of purer feelings.

IDENTITY.

I should imagine that our *identity* must be sought in the active powers of the mind, i. e. in the power of *understanding* and of *willing*, which form the nature of the immaterial principle, while all that is dependent upon received impressions, and that is liable to alteration during our present existence, may be changed without affecting the identity of the individual. The active powers may remain *essentially* the same, though the means by which they are exercised, the materials upon which they operate, and the impressions to which they are subjected are different, and we shall, in fact, be the same beings when the material organs that are our tools, have ceased to obey our impulse, and when the passion, feelings, and inclinations which tempt and disturb us during this life, have given place to the pure and elevated sentiments which must be the natural accompaniments of a life of glorious immortality. *

DIGNITY OF THE IMMATERIAL PRINCIPLE.

Although I believe that the simple addition of more perfect organs would add considerably to our powers, I do not give it as my opinion, that the immaterial principle will remain unchanged with respect to the number and perfection of its faculties.—On this point, indeed, it is impossible to form any surmise. Of this, however, I feel convinced, that the weakness and imperfection of the human mind is chiefly attributable to the constitut on of its organs. Their feebleness does not allow the soul to develop its real powers, while the nature of the moral and physical sensations subjects it to temptations of various kinds. Yet under all these disadvantages, how nobly does it soar above all that surrounds it; how infinitely is it superior in dignity to the most stupendous, the most beautiful and perfect combinations of inert matter! Weighed down by human infirmities, possessing but a partial power over a few atoms, and working with miserable tools, the intelligent power still shows its divine origin, and the mind which possesses sufficient energy to struggle with its difficulties, shines forth like a sun beam that pours its light from among dark and heavy clouds. If a limited degree of intelligence, occupying a single point in a feeble and imperfect frame, can retain the comprehension of divine truths; can make splendid discoveries even beyond the confines of the world which it inhabits; can discover the secret workings of the elements; if it is possible for a limited will, ruling partially over so insignificant a portion of matter as a few nerves and muscles, to bring thousands of other beings into subjection, and to direct their actions; what notion then shall we form of the power and intelligence that occupies and fills infinite space, that wields the whole material world, and that governs all things in heaven and in earth! The imagination is dazzled, and the mind is overpowered, by the very idea.

EFFECTS OF THE NERVOUS INFLUENCE UPON THE MORAL AND INTELLECTUAL CHARACTER.

Having traced the effects of the nervous action upon the *vital* and the *intellectual* operations according to my apprehension of the subject, I shall conclude by giving the result of my observations upon its influence upon the *character*. I shall, in the first place, consider the existence, office, and limits of this influence, after which, I shall enter more fully into a detail of its effects.

EXISTENCE OF A MENTAL CONSTITUTION.

The human character seems, upon a first view, to present an endless variety of combinations, owing to the numerous causes which contribute to form, to alter and to modify it; but an attentive examination of our own dispositions and those of others, will enable us to perceive that there is a *mental* as well as a physical constitution, reducible to a small number of combinations, and subject to classification. This constitution of the mind exhibits itself in the *natural* strength of the faculties, and in the natural force and tendency of the feelings, which may be easily discerned by those who watch the development of the infant mind; it is born with us, and is connected, as I shall presently endeavor to show, with the *physical* temperament; education, the operation of the intellect, and many external circumstances may change some of its distinguishing characteristics, but in general it is only softened and modified by them, and the original disposition often continues to exercise a silent and unperceived effect upon the individual, when it is apparently moulded anew.

CONNECTION OF THE MENTAL AND PHYSICAL CONSTITUTION.

It will not appear unlikely that a connection should exist between the mental and the physical constitutions, if we consider that the mind receives its impressions through the medium of matter (i. e. of the nerves); that it performs its operations by the assistance of a material organ, and that this organ, which is the brain, is at the same time concerned in the execution of the corporeal functions; this must surely render the perfection of the faculties and the strength of the feelings dependent in some degree upon the activity of the nervous system. I certainly believe that the immaterial principle is created with its own inherent powers, and that it is only dependent upon its material organs for their *development* and *exercise*; but this dependence is so considerable, that the faculties may remain almost useless, owing to the imperfection of these organs, as in the case of idiocy.—Two powers must therefore combine in the due performance of the mental operations; the one physical, the other intellectual. The difference in the respective strength of these two powers, is one source of the variety observable in the characters of men, as will presently appear in the analysis of this part of our nature.

DIRECTION OF THE FEELINGS.

Hitherto I have only represented the nervous system as being concerned in the degree of quickness, clearness or vigor of the faculties, and in the force or tenacity of the feelings; its influence, so far, will per-

* I have formed the following conjecture respecting the alteration that will take place in our physical constitution.—Perhaps our immortal bodies may be so formed as to execute only the functions of the *animal life*, by which the immaterial part communicates with the external world, and the functions of the organic life will not be retained, being unnecessary to a body that is neither subject to decay nor death.

haps be readily granted; but I would extend its limits still farther, for I believe that it has some share in the *direction* as well as the *strength* of the feelings. It must not be supposed that I ascribe their particular direction to a nervous cause; respecting the *cause* I offer no conjecture, and my object is neither to show *why* we are born with good and evil inclinations, nor from whence they originate, but only to state from observation, that certain passions and inclinations are more especially attendant upon one kind of nervous constitution than another. If, as I suppose, the feelings of the mind consist of a peculiar *sensation* concatenated with an idea, it is easy to account for the connection of the nervous influence with the strength or feebleness, the tenacity or fickleness, the dullness or susceptibility of the feelings, because a sensation supposes a nervous action; but their *direction* must be very partially influenced by such a cause; that it is in some degree affected by the physical temperament however, is evident, especially in characters of a marked description, except when reason, education, or external circumstances have wrought a complete change in the original disposition; bnt this is seldom the case, and we generally find in civilized man, a mixture of natural and acquired feelings, which may possibly account for many of the inconsistencies which we detect in ourselves and others.

THE FOUR VARIETIES OF THE MENTAL CONSTITUTION.

I shall now enumerate and describe the varieties of the natural character, which, as I have before observed, are fewer in number than might be supposed. The strength or feebleness of the nervous action produces two temperaments, which I shall distinguish by the appellation of the ardent and the phlegmatic; each of the temperaments may be united to a strong or a feeble *intellectual power*, and these four combinations, with the several gradations from one extreme to the other, form the varieties of the natural mental constitution.

ARDENT TEMPERAMENT.

An energetic nervous action (which I am inclined to attribute to an abundant secretion of the nervous fluid), produces a rapid circulation of the blood, a quick evolution of animal heat, with some tendency to inflammatory diseases, a certain degree of muscular power, (independently of the strength or weakness of the muscular *fibre*) and a sensibility of the nerves, which gives vehemence to the feelings, warmth to the temper, and quickness and acuteness to the senses.

PHLEGMATIC TEMPERAMENT.

The slow nervous action is shewn by a tranquil circulation, a low temperature of the blood, a moderate portion of physical strength, an absence of irritability in the nerves, and consequently in the temper. *

But before I proceed, I must mention that physical strength is derived from two distinct causes which, as it appears to me, form four different *physical* temperaments; as these also have their effect upon the character, I shall add them to the four mental constitutions above enumerated, and describe their various combinations. Physical strength results both from the firmness of the muscular fibre, and from the energy of the nervous action. "It appears, (to use the words of an able anatomist) that the power of muscular contraction is in a compound ratio of the *strength* of organization in the muscles, and the *excitation* which they receive from the brain. When both these are small, the motives are feeble. When both are elevated to their highest pitch, we can hardly set a limit to the effects which they may produce. If energetic nervous influence be combined with a weak muscular tissue, or vice versa, the phenomena of contraction hold a middle place, and this is the kind of arrangement which we generally observe in nature. Women and children who have weak muscles, have a nervous system easily excited; men, on the contrary, particularly athletic ones, have nerves less readily moved."

COMBINATION OF THE PHYSICAL CONSTITUTION.

The ardent temperament may be united, first, to a firm, muscular fibre; and secondly, to a lax muscular fibre; and the phlegmatic temperament may also be combined with a strong or weak muscular system. Of all the constitutions, the ardent temperament combined with the lax muscular fibre, is the most irritable; its physical strength is entirely derived from the vigour of the nervous action, and this is often irregularly distributed, and subjects the frame to various morbid affections, particularly of the nervous kind; the sensations are acute, and the mind partakes of the sensibility of the body, and is very liable to a morbid degree of irritability. The ardent temperament combined with a firm fibre, exhibits the greatest degree of physical strength; the constitution is vigorous, but liable to inflammatory diseases. The phlegmatic constitution united to a lax fibre exhibit the greatest deficiency of physical strength, but it does not seem particularly liable to disease until the strength is reduced below its natural standard by external circumstances; the nerves are not irritable, consequently the sensations are not acute, and the mind is usually placid. The phlegmatic temperament united to the firm fibre is the most desirable of all constitutions, as it gives the advantage of strength without irritability; an athletic form, robust health, and an even temper, are its usual concomitants. *

EXAMPLES OF THE PHYSICAL CONSTITUTION.

These varieties of the physical constitution are best exemplified in the brute creation. The difference of the two strong constitutions is seen in the tiger and the elephant; the first, compact, vigorous and alert, shews the energetie nervous action united to a firm muscle; the other, huge, ponderous and clumsy, shews the phlegmatic temperament combined also with the strong muscle. The soft muscle united to the phlegmatic temperament is seen in the fish kind; its combination with the ardent temperament I cannot trace in animals.

* The richer the blood is in red globules, the stronger is the vital power of producing heat in the system. In the temperaments which physicians call lymphatic, in opposition to sanguine, and which I call phlegmatic, on account of its influence on the temper, the blood contains fewer of the globules which give it colour. It is more cold and watery, hence probably results the fairness of hair and skin, which is the usual external token of this temperament.

MISCELLANEOUS.

PUBLIC EXHIBITIONS.

We did not suppose we should have occasion to refer to this subject again, but so numerous have been the commendations bestowed on our remarks from different sources, that we think it but just that we should do so, once more at least.

* I cannot help fancying that this was the constitution of Adam; but we have woefully degenerated since his time, for we seldom meet with that calm possession of power, that gives majesty to the deportment, and serenity to the mind.

Our attention has been called to the following article from the Castleton (Vt.) Statesman. We give it a place in our columns, for the purpose of showing some of our friends one reason why we are opposed to these public exhibitions of the magnetic sleep. We do not, of course, suppose that every public operator is exposed to the censure deserved by the persons alluded to in the following account; but we do know, that this subject is liable to abuse; and where there are any found so destitute of moral principle as we know some to be, the public should be put on their guard against such shameful impositions.

On the evening of August 24, 1842, the following handbill was circulated in the village of Castleton, Vt.:—

"THE GREATEST MYSTERY IN THE WORLD!

"Lectures by Dr. Adrien, on ANIMAL MAGNETISM, combined with Electricity and other Philosophical Experiments, will be given at the———, on Wednesday, Aug. 24, 1842, at 7½ o'clock, for one night only, owing to previous engagements.

PART FIRST.—Showing the original discovery of the science, and its progress in France and Germany.

PART SECOND.—Dr. A. will go through many experiments on this interesting science, which has bewildered all the Savans of Europe and America. In one visit the greatest skeptic will be convinced of the truth of this most occult of all wonders which the world has ever known. This science was discovered by Dr. Bradshaw, when travelling in Egypt, among the natives on the banks of the river Nile. The subject will be managed in such a manner as to insure the most happy results, and with a strict regard to its scientific and philosophical bearings. The audience will have the liberty to appoint a chairman, and three of the most scientific gentlemen in the room, as a committee to investigate the science by the persons put in the magnetic state, in presence of the audience; and many astounding experiments, which baffle all attempts at description, will be performed by the ladies or gentlemen in the magnetic state."

In answer to the call of the above handbill, an audience assembled, many for the purpose of testing the magnetic powers of the operator. After a few preliminary remarks, the lecturer proceeded to place his boy in the magnetic sleep. Then, according to Dr. A.'s request, a chairman and committee of three was appointed on the part of the citizens. I. T. Wright, Esq., Chairman; Professors Reese, Post and Perkins, Committee.

The committee report, that on examination they were satisfied that the boy was not asleep, and that on the part of the boy and the operator, as well as his assistant, there was gross collusion and imposture. The precautions the committee took defeated every experiment, until the operator dismissed the boy and closed the experiments, promising to give a free exhibition the next day. On their abruptly leaving the premises, the instruments of collusion between the parties were found, consisting of strings, pulleys, &c., concealed beneath the carpet, and moved by the door-keeper of the exhibition. On this discovery, the audience were indignant at the grossness of the attempted imposture, and the next morning measures were taken for the legal arrest of the parties, and on their disgorging their ill-gotten gains, and signing a paper for publication which accompanies this notice, they were permitted to depart without enforcing the penalty of the law.

A committee of the medical class then presented the following paper, to which the other three parties severally affixed their signatures, with a perfect knowledge of the use to be made of it by publication. The paper was signed in the presence of Professors McClintock and Post, I. T. Wright, Esq., and of the committee, whose names are annexed.

"We, the undersigned, exhibiters of Animal Magnetism, do acknowledge at the exhibition at Castleton, Aug. 24, 1842, we for want of the power of producing the promised effect, did contrive by means of wires, strings and pulleys, an attempt to impose upon the good sense of the audience, but by the close examination instituted on the part of individuals, utterly failed in the attempt."

E. D. Ransom,	(Signed)
Luther Buxton,	Jesse Begle,
J. E. Claghorn,	John Adrien,
Elton R. Smilie,	his
Langdon Sawyer,	John × Williams.
Committee.	mark

CURIOUS GEOLOGICAL DISCOVERY.

A few days since, some workmen employed in raising stone from one of the lias quarries on Brockridge Common, made a discovery, 14 feet from the surface, of what they called the "bones of a fish," and of which they gave information to Mr. Dudfield, of Tewkesbury, who immediately proceeded to the spot, and found it to be, on examination, the fossil remains of an ichthyosaurus or fish lizard. Mr. D., after much care, patience, and labour, succeeded in disinterring it, had it safely conveyed to his house, and upon minute examination and careful cleaning, had the satisfaction to find that he had obtained one of the most beautiful and perfect fossil skeletons of this extraordinary antediluvian animal this country affords. This magnificent specimen measures six feet and ten inches in length, having the head, the whole of the spine, consisting of upwards of 100 vertebræ, with many of the spinal processes, the tail perfect, even to the smallest point, two of the paddles or fins quite perfect, and a considerable portion of a third, both the scapulas, many of the ribs, and some very delicate small bones near the tail, which render it probable that the animal had an appendage there, probably used as a rudder, which will excite the interest and curiosity of scientific men, as they have been hitherto unnoticed or undescribed.—*Cheltenham Chronicle.*

TOBACCO A REMEDY FOR ARSENIC.—A young lady in NewHampshire fell into the mistake so often committed, of eating a portion of arsenic which had been prepared for the destruction of rats. Painful symptoms soon led to the inquiry; and her mistake was quickly discovered. An elderly lady who was present, advised that she should be made to vomit as speedily as possible; as she had always felt a perfect loathing for tobacco in every shape, it was supposed that this would at once effect the purpose. A pipe was used, but without producing a nausea. She next chewed a large portion of strong tobacco, and swallowed the juice, and that even without a sensation of disgust.

A strong decoction was then made of hot water, of which she drank perhaps half a pint. Still there was neither nausea nor dizziness, nor did it operate at all, either as an emetic or cathartic. The painful sensations at her stomach, however, subsided, and she began to feel well. On the arrival of physicians, an emetic of blue vitriol was administered, and produced one operation.—One or two days after there was a discharge of a dark green color, approaching black. No ill consequences followed.

Another case occurred in the same place a few years subsequently, in which arsenic was taken through mistake, by a sick person, and she employed tobacco with success. She, too, had always loathed the article, but now chewed it, and swallowed the saliva, without producing sickness at the stomach. No emetic was administered nor any other remedy.—*Silliman's Journal.*

Curious Fact in Natural History.—*Hair worms from a cricket.* We suppose every one has seen the long, slender black worm frequently found in tubs and pools of water, which some have thought were produced from horse hair more than any thing else. It is not certainly known how they are propagated, or, from whence they come or whither they go. The other day, Mrs. Elijah Jacobs, of this village, observed a cricket (one of the common black crickets that are so common in the fall of the year), in a basin of water that was set in a sink. The water had been used a little while before, and was clean. Her attention was soon attracted more carefully to the subject, by the appearance of a worm that was making its way out of the body of the cricket. It proved to be one of these hair snakes, as they are called. Presently another one showed itself, not quite so long as the other, and soon after a third, considerably smaller than either of the others. As soon as the third one had come out, the cricket struggled violently and died. These are the facts as observed by Mrs. Jacobs. The basin, cricket, worms, water and all, were brought into our office for exhibition. The largest worm was about six inches long, and very lively, the others were not very active. How came these worms in the cricket? are they generally found in or about such insects, or are they exclusively a water animal?—*Winthrop (Me.) Farmer.*

Causes of Apoplexy.—Any thing calculated to hurry the circulation and to increase the force of the heart's action, is likely to operate as an exciting cause of apoplexy simply in augmenting the momentum of the blood against the sides of the cerebral vessels, which in advanced life are so often diseased and weak. Strong bodily exercise, therefore, is a thing to be avoided by all persons in whom the predisposition to apoplexy has declared itself. It is of much importance to make patients aware of this, for many persons think, when they labor under uncomfortable bodily feelings of any kind, they may get rid of them by brisk walking, or galloping some miles in the country on horseback. Another dangerous state of such persons arises whenever the free escape of the blood from the head is subsequently obstructed. Certain diseases, chiefly thoracic, which tend to keep the veins of the head inordinately full, rank among the predisposing causes of apoplexy.—[*Medical Gaz.*

Insanity on the Increase in England.—Nervous affections, including, of course, among them insanity, have alarmingly increased of late years in this country. The fact must be obvious to those whose situation and avocations give them an opportunity of obtaining an insight into the present conditions of society. The medical profession appears conscious of the evil, and yet are fearful of admitting its existence. In hesitating to grapple with the common enemy, we allow it to obtain possession of the citadel. We are like soldiers sleeping at our posts, instead of being actively employed in watching for the first appearance of the foe. The stream is allowed to flow until it swells into a torrent, sweeping everything away that attempts to impede its progress. It is painful to contemplate the encroachments that this the most terrible of human afflictions is making among the ranks of the British aristocracy. It may be said that there is no public record of this fact, that the general and medical press are silent on the point. This may be the case, but it should be recollected that it is not in such channels that information relating to the increase of mental disease in the upper walks of life is to be obtained. Peculiar sources of information enable me to state as a fact, that the public is but little aware of the awful extent to which insanity has increased in England. Many causes operate in keeping the public mind ignorant of this fact. Insanity is supposed to cast a stigma, and leave a stain, on any noble or aristocratic family in which it may make its appearance; consequently, they are most desirous of concealing the existence of any such ailment when it developes itself. The origin of the evil is to be sought for in that artificial state of society which grows necessarily out of constant advancement and civilization. We multiply our comforts, and by consequence our cares and crosses. We beat out and expand our minds, as it were, and thus create a more extended surface for impression.—*Polytechnic Journal.*

Atmospheric Railways.—A report of Lieutenant Colonel Sir Frederick Smith, Royal Engineers, and Professor Barlow, F.R.S. to the President of the British Board of Trade, on the atmospheric railway, has just been published by order of Parliament.—This report is dated Whitehall, Feb. 15, 1842.—Lieutenant Sir F. Smith and Professor Barlow, having stated *seriatim* their views on the subject, and having given in the appendix to their report, the experimental results and investigations on which they are founded, conclude by stating as follows:

"1. That we consider the principle of atmospheric propulsion to be established, and that the economy of working increases with the length and diameter of the tube.

"2. That the expense of the formation of the line in cuttings, embankments, bridges, tunnels, and rails will be very little else than for equal lengths of a railway, to be worked by locomotive engines, but that the total cost of the works will be much greater, owing to the expense of providing and laying the atmospheric tube, and erecting the stationary engines.

"3. That the expense of working a line on this principle, on which trains are frequently passing, will be less than working by locomotive engines, and that the saving thus effected, will, in some cases, more than compensate for the additional outlay; but it will be the reverse on lines of unfrequent trains.—However, there are many items of expense of which we have no knowledge, and can form no opinion, such as the wear and tear of pistons, valves, &c.; on these further experience is needed.

"4. That with proper means of disengaging the train from the piston in cases of emergency, we consider this principle, as regards safety, equal to that appertaining to rope machinery. There appear, however, some practical difficulties in regard to junctions, crossings, sidings, and stoppages at road stations, which may make this system of less general application."

A singular plant.—Lieut. Alvord of the Army has presented to the National Institution at Washington a specimen of a plant, known in Wisconsin and through the West, as the "Polar Plant," having one large flat leaf whose plane always points to the North and South.—Such a magnet must be valuable to travellers upon the desert prairies of the far west.

THE MAGNET.

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PSYCHOLOGY.

For the Magnet.

MAGNETIC PHENOMENA.

In my last communication in No. 5 of the Magnet, I mentioned, that I believed exposure was the cause of the inflammation of the brain in the patient alluded to,—but it was otherwise. The evening previous to the disease having manifested itself, my patient had examined a young man subject to a very strange affection which troubled him at night only, after having retired to bed; the most prominent symptoms of which were, a dread of some person or persons endeavoring to injure him, loud and awful screams, disposition to fight, and tear or break every thing to pieces; and for the time a state of complete insanity. He was examined during the absence of his paroxysm, and at about a mile distant from the somnipathist, neither she, nor myself, having ever seen or heard of him before.

I did not magnetise the lady again, until several days after her perfect recovery from the phrenitic attack, and then inquired the cause of it. The reply was, "It was caused by examining the above patient; that in the examination her brain became similarly *polarised* with his—[mark her words—when awake she knows nothing of polarity,]—and that, if I had not been as prompt and decided in my treatment as I was, that she would have become incurably insane;" and she begged me never to allow her to examine such cases again, which you may believe I faithfully promised.

You may judge how the feelings of surprise, horror, and pleasure, alternately took possession of my mind, and I felt that I could not, in justice to Mesmerism, to the world, to truth itself, suffer such a fact to pass unknown to the community; for, with this fact before them, mesmerisers, whenever placed in similar situations, will know how to act and proceed; and it is only by a knowledge of such facts and circumstances that we can ever expect the science to progress, become perfected, and thus gain entire public confidence.

I have another incident to relate which may not be generally known among magnetisers, after which I will give some translations from Puysegur, who is rather a favorite of mine, and who being the discoverer of magnetic somnambulism, has, I think, been sadly neglected, as very little reference is ever made to any of his writings, which are very valuable, and from which much important information may be derived.

The person who formerly magnetised my patient with chorea, carried with him one day another patient, who had expressed a desire to see her in the somnipathic state. I mentioned to him the result that would take place if he magnetised them together, and desired him not to do it; but as he had never before magnetised for health, but experiments, &c. only, which is very improper and injurious, he could hardly believe me, and stated, that if what I represented should happen, he was powerful enough as a magnetiser to throw it off. Contrary to my wishes and expectations, he magnetised them together, and while they were in the magnetic state every thing proceeded very well, so much so, that I began to think nothing serious would ensue. They were thus together for nearly two hours, when the patient with chorea was restored to her natural state, and placed in communication with the other, who immediately commenced giving, in a powerful manner, and distressing to behold, the exact motions of the other. The magnetiser, unable to control them, became alarmed, and lost the presence of mind necessary for a magnetiser to retain under such circumstances; he awoke her, thinking that in the natural state they would disappear, but they still remained, though not exhibited so powerfully. Anxious to spare the feelings of the young lady, who, I knew, must witness this accident with any but pleasurable sensations, and extremely mortified and grieved myself, I hastened home with my patient, placed her in the magnetic state, and did not leave her until all this action had become completely subdued. However, for several weeks she suffered from this accident, and upon entering into the magnetic state evinced symptoms of a return of the same action, which had to be removed before any thing could be done with her in relation to her own diseases.

There is one thing which, sooner or later, must be known, notwithstanding the general expression of magnetisers that they can never injure, or do evil to their magnetic patients; and, it seems to me, there is no better time than the present to make it known, while the science is in its infancy; for a few vicious actions of some unprincipled magnetisers would cause mesmerism to lose the confidence of the public, and thus crush, in the bud, a science destined to become, in the hands of the good, one of the greatest blessings ever bestowed upon man by his Creator, both for social, physical, moral, philosophical, medical, and truly religious purposes.

No person should be permitted to magnetise another, unless he be one in whom that other can place implicit confidence as to integrity, morality, and purity of purpose; *for every magnetiser should be one of the most moral among men.* And every magnetiser, if only for the sake of the science, should make

it a rule from which he will *never* depart, to magnetise no *female* unless some third person, or friend, remains present during the continuance of the treatment: if this is done, the science will progress rapidly in perfecting itself, and in gaining public encouragement, and busy scandal will have no mark at which to aim her shafts. And let the public remember, that whenever any magnetiser refuses to accede to the above rule, and can give no *reasonable* and *satisfactory* excuse for it, we may justly believe that his morals are not the purest, his feelings the kindest, nor his intentions the most sacred towards his patient, and in the hands and power of such a man we may fear for her accordingly.

JOHN KING, M.D.

New Bedford, Oct. 1842.

FROM PUYSEGUR.

The girl, C— V—, at the time of my departure from Buzancy, towards the 15th June, 1784, was not entirely cured of the disease which she formerly had. I had recommended her to go to the magnetised tree with assiduity, hoping that its assistance alone, without my presence, would be able to complete her cure, since it sufficed merely to touch her to place her in a somnambulism which characterized her *magnetic crisis*. I had instructed L—, my farmer, a very observing man, with the means of restoring her to her natural state by his will.* I learned, that for 8 days she had visited the tree regularly, and health had become much better; and believing herself entirely well, she came no more. As the labor which her service on a farm demanded during the harvest would not permit her to travel very slowly, she went half a league of the road every day; what then was her surprise, at the end of several days, to find all her diseases returned—colic, vomiting, debility of the stomach, and all her former sufferings.

L— took her to the tree; she experienced one of her ordinary *crises*, followed by a sensible benefit. This alternative had been pursued several times, until finally L— bethought him of supplying himself the virtue of the magnetised tree. It is he who operates at present, and of whom I speak, as related by him. "The 28th Sept. of this year, being unable to absent myself from my farm, and seeing the need that this girl had of magnetism, I tried one day to *touch* her.* I had seen you operate, I had reflected on several things which you had told me, on what I had read in a letter from your brother to Mesmer, and on what I had done every day to restore C— to her natural state, after having been magnetised by the tree; finally, I became persuaded of the existence of an *universal agent*, first cause of our existence, and acting continually to preserve it; I comprehended the possibility of fortifying this agent within me, and to direct it on another, after which I began to touch this girl.

"What was my surprise to see her, at the end of two minutes, in the same state of somnambulism as that produced by the tree. To her I was truly a loadstone: my finger sufficed to direct her, to remove her, to make her sit where I willed, without speaking a single word to her; finally, I exercised on her, *at my will*, all the extraordinary phenomena which I had seen you produce.

"From the day following this first crisis she had no more vomitings, and found herself doing well. I continued to magnetise her for several days, and always with success. I will observe to you, however, that she acknowledged to me that she felt almost constantly a little pain in the side; that it commenced as soon as the vomiting ceased, and, she added, that when you were here, and while she went to the tree, she had always experienced this pain, which she did not mention to you, as it did not prevent her from work, nor from having a good appetite.

"Since your departure, there have been a great many people who came with the hope of being magnetised, and of being touched by the somnambulists in your treatment. After a while, the tree became deserted. It soon became known, that C— continued, with me, to fall in crisis, and many came to see her. While she was in this state, I made no objection to their consulting her, and each one returned home fully satisfied with what she had told them. Her pain in the side did not leave her, but neither of us paid any attention to it.

"There came one day a patient from Soissons, Miss Rousseau. C— being in crisis, told me to make the *chain* with this young lady, as it would do her much good. I did as she desired. In a short time, C— said to me, 'Look, Miss Rousseau suffers much, you must touch her.' I still obeyed, but it only increased the sufferings of the patient. C—, who observed her attentively, encouraged me to continue, telling me that if I could make her fall in the crisis, I would very much benefit her, and that this was the only method by which to cure her. Not knowing very well how to place her thus, I inquired. She replied, for me to get a bottle, and to use it in order to touch the lady. I followed her advice, strictly. I procured a bottle, and used it in the manner indicated

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* The restoration to the natural state is the most easy of the magnetic operations. Considering ourselves as perfect *human electrical machines*, endowed in a supreme degree with the positive and negative forces, the only difficulty consists in mounting, or winding up this machine, and to know how to use it. But from the time that we have arrived at the point of *magnetising in plus* (so to speak), we ought also to be able to *magnetise in minus*: the one is the attendant of the other—it is the same handle, which we turn in another sense.

See the note on the will, and reflect on that which is the will, on the possibility of having it only for good; consider what are all the accessories which may destroy the good will; from which you will certainly conclude, that it is always the fault of the magnetiser when he does no good to his magnetised patient. Abstain above all from ever making any idle question to the being you wish to relieve; these questions make labor for the mind and imagination, which, in a patient, ought always to be in a state of repose. It ought to concern you very little whether he feels cold or hot, whether he falls asleep, or whether he has startings or jumpings:—*will* only to help him, and be tranquillized as to the event, which will always be the more favorable as the thought which determines it approaches nearer to the purity and goodness of the principle from which it necessarily emanates.

I repeat, that it is only practical experience which will enable men to feel the power of their *will*, the spring and source of which have been too often closed or destroyed by disquietudes, sorrows, diseases, disordered passions, and misfortunes.

* I often employ the word *touch*, as synonymous with the word *magnetic*; when applied in speaking of a new patient, it is always necessary to represent it under the second acceptation. The proceedings for it have been indicated by Mesmer to his pupils in so precise a manner, as to need no new explanation.

The experience that I have acquired confirms me in the idea, that the *head* and the *solar plexus* are the parts of the human body which receive the *magnetic emanations* the most effectually. The eyes, above all, appear to me to be more susceptible than any other organ. It is by a light friction on the eyes that I finish the magnetic charge from whence results *somnambulism*; and it is, also, by a very light friction on the same organ, that I produce the discharge from whence follows awakening and the natural state. The immediate touch without pressure, is that which I prefer; though it seems to me that the magnetic action is increased in its intensity by a light friction. In other respects the magnetiser may, without inconvenience, make slight differences in his manner of proceeding.

by C—. Miss R. suffered still more, but did not fall in crisis: C— was astonished. 'It is singular,' she said, 'she ought to fall in crisis; let me see, I will touch this bottle myself.' I allowed her to take it, and examined with attention the effect which it would produce upon Miss R.; but what was my terror to see C— immediately fall into frightful convulsions. Aided by my wife and daughter, we could not hold her, this girl, naturally of a gentle character, in whom the crises were ordinarily so calm, now struggling with a surprising force, and making fearful cries. I had much trouble to quiet her, and too much frightened at the effect I had caused, I resolved to touch her no more. In the evening she was tranquil, and well as usual, without even feeling any fatigue from the state in which she had been.

"I was in hopes, that by not touching her any more, she would have no more *crises;* but the next day, at the same hour, behold C— in the same convulsions as on the previous day, and the same difficulty to remove her out of it; finally, for four days this state was renewed. You may judge, sir, of my inquietude, and how I reproached myself for having used a means with which I was only imperfectly acquainted."

This recital of L —, though not given in precisely the same words, yet the sense is the same.

"Without doubt," said I to L—, "the only danger there is in the employment of magnetism, is to use it without knowing all its resources; your indiscretion may have disorganized this poor girl for the rest of her life. These are the unfortunate *convulsions* which have done so much injury to the discovery of Mesmer. Many people imagined themselves very knowing if they could produce them; every day presented the same scene; and the habit of seeing them rendered them no longer to be dreaded; cures rarely followed, as the only object was to give convulsions, and none were embarrassed at the consequences. But where is the poor girl ?"

He answered—"After five or six days the tertian ague attacked her, she had it for a month; it is now three weeks since the fever left her, without her taking any thing to remove it; and since that time she has been exceedingly well, feels no pain in the side, grows fleshy, is gay, eats and sleeps well, and is hardly recognizable."

"Thank Heaven !" said I; "nature has come to your assistance; you have been more fortunate than wise: without this blessed fever, C— would probably have been incurable. It you had been better instructed at the time of her first convulsion, you would have thrown away the bottle, and continued to magnetise as customary, which would have tranquillized your patient very quickly; by abandoning her to herself, you rendered null the effort which you had given to nature; for several days it would have been necessary to replace her in the condition from which she had departed, although no benefit would have followed it; that is the reason why it was beneficial on the next day to produce the same convulsions, taking care never to quit your patient without calming her, and probably at the end of three *crises* of this kind, you would have seen her as well cured as she is at present by the assistance of the fever."

Magnetisers, in general, are not aware how very dangerous is the state of convulsions when left to itself, at least while operating on epileptics, on whom magnetism acts but slowly. Whenever we meet with individuals in whom magnetism produces convulsions, or spasmodic motions, we should be careful how we abandon them to themselves, still more how we seek to augment this violent state; on the contrary, it is necessary to make every effort to calm them, and never to quit the patients until they are in a certain state of tranquillity. (*Puysegur.*)

The susceptibility which patients in the magnetic crisis have of receiving with promptitude certain diseases, has been demonstrated to me several times. I have seen somnambulists in the middle of a chain of many patients, ask to quit their places, saying that their neighbors made them unwell; others remove themselves with haste; and I have often had to repair accidents caused by the approach of certain persons.

So great an inconvenience has given me an unfavorable idea of a large treatment; and for a year past, when I have had occasion to place several patients together, I have always taken the precaution of admitting none of the subjects whose influence I feared.

I one day consulted a patient who had the sad experience of receiving diseases, two or three times, on the kinds of diseases which may be the most easily communicated to somnambulists. His reply, which was in writing, and which I preserved, was, that the most dangerous were "*epilepsy, scurvy, diarrhœa, paralysis, sciatica, catalepsy, itch, cold humors,* and all *venereal diseases.* It is proper," added he, "for none but magnetisers to treat these kinds of diseases, because *their action* and *their will* repel their evil influences; whereas, on the other hand, the *crisises* give and receive *fluidity, perspiration,* and as the *action of disease* happens to them at the same time as the *sensation,* they are susceptible of taking very quickly that which they desire to remove."

The danger which somnambulists run in touching certain patients, ought not, however, to deter us from consulting them on the diseases of others; but it is necessary to do so with much caution. A somnambulist very active (*mobile*), at the same time a clairvoyant, ought to be able to distinguish patients at a certain distance; and when, after having examined them thus, he consents to have them come near, there is then, certainly, no risk for him. All somnambulists are not, I believe, as susceptible one as the other—with them, *debility* is an indication of their susceptibility.

A lady who had suffered from this communication told me at the time of her accident, "that the humor of epilepsy and paralysis was not thrown so strongly upon her, in consequence of the purity of her blood. *I have had several changes,*" said she, "*which have renewed my blood—I likewise have my body as healthy as an infant newly born; but because of my debility, the abundance of humors of this little girl are very quickly diffused upon me.*" She also added, that if she had touched her longer, the patient would have been entirely cured at her expense.—(*Puysegur.*)

For the Magnet.

CASE OF NATURAL SOMNAMBULISM.

Dear Sir,—From the merited encomiums bestowed on your work, it would seem very likely to become one of the most popular periodicals in our country. And, with the hope of increasing its usefulness, I shall take the liberty of stating a few facts in regard to my own case, which, perhaps, may not be altogether uninteresting to you.

I have, for years, been much interested in the study of this subject, but, unhappily, till I met with your publications, I had received but little assistance in my investigations. And now, since you have so ably and fearlessly combated prejudice, and brought the subject before the public in a more tangible form, I feel in duty bound to communicate my pleasing gratification at seeing this important science

enlisting the attention of the ablest minds in the community.

We have, at this present time, in the city of Lancaster, a physician, who has thus far been eminently successful in his magnetic operations, and in some instances quite beneficial to his patients in removing local diseases. I have always held it a duty incumbent on every individual, to give his item of knowledge to the sum total of human happiness. And, as I am of a peculiar temperament, it may, perhaps, add something to the progress of this unexplored science, to give a description of my personal experience, so far as it may be related to human magnetism.

I have, from my early youth, been a natural sleep-walker; but it would, perhaps, be superfluous to relate all the adventures I have made, in the natural somnambulic state, as related to me by my parents; however, a few of the most prominent may be given.

From the age of ten to fifteen, it was almost a nightly habit with me to get up from my bed and travel through the whole house, unbarring the doors and walking through the different apartments with the greatest ease in utter darkness, sometimes unlocking the back door and travelling into the yard and out-houses, stopping at different places, and examining, apparently with the nicest precision, such articles as happened to fall in my way.

Yet, after being awakened, not the slightest recollection remained of what had happened. During some of these nocturnal excursions, I opened a dormer window, and crawled out thence to the very apex of the roof! On one of these occasions, after getting on the top of the house, I was awakened by a slight shower of rain, and it was with difficulty I made a safe descent by way of the next neighbour's house, which obliged me to rouse the family in order to get back to my bed again.

The most singular feat, however, that I performed in the somnambulic state, was a situation that I got into, out of which I could not extricate myself again in a waking state, neither could I, upon trial, without the assistance of something to step on first, get into it again. The room in which I slept, at this time, had in it an old-fashioned cradle, of double length, made for twin babes. This was placed upon a long, narrow keg, which stood on its end, so that when standing alongside of it, the sides of the cradle came within two inches of my chin, and it was so poised, that a slight preponderance either way would capsize it. During one of my nocturnal perambulations in the middle of the night, by some means I got into this cradle, without the assistance of any thing that would enable me to step up, save some strange inexplicable cause. It was a cold winter night, and I became awakened while in the act of pulling books from around me, which were in the cradle at the time. After being perfectly awakened, it required a great deal of caution to support my centre of gravity, until I had called the assistance of some of the family to enable me to get down.

In the somnambulic state, I am told my eyes are wide open, and have a glassy appearance. Although I would answer questions, and talk freely on subjects that were indicated by my conduct, yet it was next to impossible to waken me by any other process than the application of cold water. After a more advanced age, these symptoms have taken a different form, my nightly perambulations being confined to my chamber, and the symptoms are more particularly connected with the organs of hearing and vision. It does appear, that, like the inner vision without the aid of the external eye, there is also a distinct faculty of hearing, independent of the external ear. This has been experienced by persons of my acquaintance. I have frequently hastened to the place from whence sounds appeared to come. Generally, it appears to be the calling of my name, by persons whose voice I can recognise; but the most frequent delusions are through the eye. These symptoms, from their frequency, although not fearful in themselves, have been of late a source of annoyance, and they always occur in a half-waking condition. The clearer and smoother the chamber in which I sleep, the less am I annoyed with these delusions. Of these symptoms and their operations, I have a tolerable distinct recollection afterwards. I generally find myself sitting up in bed, in the act of getting up and moving towards the objects, which mostly appear to be human beings, and often persons of my acquaintance. Although this happens to me in a half-waking condition, still, I possess the faculty of reasoning within myself upon the necessity of not minding these delusions, but seldom become perfectly satisfied until I get up and try to touch the object; but invariably get awake on being touched by another person. After being awakened, it has often appeared to me that a conflict had been going on between the material and spiritual functions.

It appears, that a universal agent (which you term magnetism), does influence all animate matter, and that it may be so modified in an individual, by the power of the same property in another individual, as partially to neutralize it in one or the other. With myself, it generally affects me more when I am magnetising, than it does the person magnetised, and yet I often succeed in throwing my patients into sound magnetic sleeps; but, as yet, they always get awake on my leaving them, or ceasing to manipulate.

Such have been a part of my observations on human magnetism, and I freely submit them to your disposal. From an earnest desire for the progress of this important science, and the peculiar advantages of my profession, I can perhaps furnish you with occasional remarks, that may assist in promoting your worthy investigations.

Very respectfully your obedient servant,

JOHN WISE.

Lancaster, Pa. Oct. 14, 1842.

We should be pleased to receive communications from other natural sleep-walkers, giving an account of their present feelings and recollections on this interesting subject.—Ed.

For the Magnet.

QUERIES.

Rev. La Roy Sunderland,

Dear Sir—I rejoice that you have ventured to contemplate man as a legitimate subject of scientific investigation; that you have dared to unveil the heart and show its connection with unchanging laws, and the perpetuity and immortality of mind from the developement of its own powers.

I rejoice, that, by the aid of the magnetic phenomena, the great principles of christianity are likely to be seen and read of all, in the very lineaments of mind, in the exhibition of an inherent power, capable of directing and controlling the moral relations of the physical constitution of man, and thus make it subserve the great end of human existence.

To me, it seems the world has always been indebted to magnetic phenomena for its views of immortality; that there has been, in every age, occasional exhibitions of the power of mind over the physical relations of matter, insomuch, that mankind have generally recognized this sentiment, and referred to corresponding phenomenas.

All systems of religion refer to some exhibitions

of mental power, controlling and directing the physical relations of man, and claim immortality of mind on the ground that it possesses, and has exhibited power, over those agents which mark ultimate destruction upon every thing else: and the great dissideratum of all religious systems seems to be, the resumption of that power which may, perhaps, be regarded as the individual property of the mind, and which gives to it the imagery of God.

In exhibiting phreno-magnetic phenomena I would inquire:

1st. Is it proper to restore the somnipathist to a natural state when under phreno-magnetic excitement?

2d. Is it proper to let the somnipathist eat or drink, when those appetites are magnetically excited?

3d. How long, in pulmonary complaints, should the magnetic slumber be continued?

4th. Why is the magnetic character assumed by one, and cannot be impressed upon another?

I have made but few experiments, but in one case (a girl of 13,) I excited the love of stimulants, and she immediately called for brandy—wanted two quarts, and as the excitement was continued, demanded greater and greater quantities; and nothing would do but brandy. I excited acquisitiveness, at the same time, and told her I could not buy so much, and she said I must steal it then, for she would have it. I then excited combativeness and destructiveness in conjunction with the love of stimulus, and she made a pass at my throat, and said she would kill me if I did not get it. I then removed the excitement of combativeness and destructiveness and excited benevolence, and the ferocious maniac became mild and fascinating in her child-like expressions. But still she urged me in tones of impressive sweetness to get the brandy, for she could not live without it.

When I excited thirst, she called for water. I drank, in a position she could not have seen me, if her eyes had been open, and she said, "drink faster, drink faster." I told her she must have some brandy, but she said, "no, no, no."

I excited hunger in conjunction with combativeness and destructive ess; and she consented to feast on coons, possums, snakes, &c., and exhibited a corresponding ferocity. But when I dissipated the action upon combativeness and destructiveness, and excited benevolence, she wanted something nice, something good, and manifested an indignant feeling, though couched in mild expressions, when asked to eat a coon.

I restored her to a natural state without dissipating the excitement upon the organ of hunger, and without being made acquainted with what had passed, she repeatedly complained of being very hungry. Three hours after, she dined and remarked, "things never tasted so good."

These observations induce me to enquire of you whether it is not desirable, at the close of every sitting, to excite the whole region of the moral faculties, with a view to obtain a habitual determination of the nervous fluid to that department?

With sentiments of high respect for your independence and perseverance in the cause of truth, I am, though a stranger, your kinsman in the visions of the mind, L. M. PARSONS.

N. Ridgeville, *Lorain County, Ohio.*

Sept. 26, 1842.

P. S. If you can make any part of this letter subserve the interest now universally felt in the cause of human magnetism, it is at your service. If it should be convenient for you to give some instruction touching my inquiries, in some future number of your valuable Magnet, you will confer, I doubt not, a blessing upon many suffering individuals; as many I believe, like myself, need the direction of some master in the science, in attempting to exhibit its remedial powers.

September 29th—I have read this letter to several friends here who are greatly interested in the discoveries you are presenting to the world, and they are very desirous that you should give publication at least to the sentiments contained upon the first page, and have directed me to give this intimation of their wishes.

There is one very interesting feature in the exhibition of phreno-magnetic phenomena, viz: when appetites are excited in conjunction with the animal passions, they exhibit a grossness peculiar to animals. But when excited in conjunction with the *moral* faculties, they exhibit a delicacy and refinement not equalled in the most elevated society.

For the Magnet.

INTERESTING EXPERIMENTS.

Allow me to make known through your valuable journal, the following remarkable results, which prove human magnetism beyond a doubt:

1. Having reversed a glass tumbler, I placed several common sewing needles upon the bottom in lines parallel to each other; after having magnetised them strongly, for fifteen or twenty minutes, drawing the hands regularly from one end of the needles to the other, they became magnets, and attracted and repelled the same as any other magnets.

2. Having procured a small bar of pure soft iron, not magnetised, about five or six inches in length, I wound thread around it, as is done in magnets attached to a battery, leaving only a small part of each end exposed; this bar thus prepared, exhibited no properties other than is common to iron not magnetised, but when grasped in the hand of a somnipathist it immediately became a magnet, attracting and repelling, making permanent magnets, &c. &c. As soon as removed from the patient its magnetic properties ceased.

3. While magnetising several patients one day, a gentleman from Philadelphia, who is well known in that place, Mr. Obed Colman, magnetised the lid of a book for several minutes, and then with his hand at the distance of an inch or two, he caused it to raise and open itself merely by the magnetic attraction existing between his hand and the lid; he repeated this experiment several times with success. Mr. C. states, that it requires a powerful exertion to accomplish it, with a constant, fixed, and determined will, and that he experimented some hundreds of times before he was able to effect it. I have tried it many times, and as yet, have only been able to make it raise a line or two, vibrate as it were, and then fall. None but strong, healthy individuals should try this experiment, as its debilitating effects upon the system are very severe.

4. While making examinations, one evening, the idea entered my mind of ascertaining if there was an organ, by acting upon which, the person, while in a natural state, would be able to know my thoughts. After about three quarters of an hour, in study, my patient informed me that there was; but, that it would be dangerous to employ it; it was pointed out to me, and a willingness expressed that I might test it for a few minutes. I went through the necessary process and then restored her to her natural state, and explained what I wished her to do. Keeping my thoughts strongly on several subjects, she informed me correctly, what they were. I kept her thus, for about eight or ten minutes, and then replaced her in the magnetic state, in which state

she kept me almost constantly employed for four hours, in magnetising various points, in order that no bad effects might be produced from what had been done, and she awoke as well as usual. I will add here, that nothing would ever tempt me to repeat the above experiment.

I have given you these facts, without comment, for to every reflecting mind, they will suggest ideas which will aid greatly in facilitating the progress of the science.

I have tried experiment No. 2. in a number of cases, in some the magnetic power is more clearly manifested than in others; again, in some, it will not appear unless they are requested to magnetise the bar, and in others, there appears to be no effect whatever. The magnet produced in this manner will attract and repel small needles, and make permanent magnets of them; in some instances, the magnetism is so weak as to be shown only in its action on iron filings.

In having a bar made, it is best to have it done by *filing down* a piece of pure soft iron to the proper size, about $\frac{1}{4}$ inch square in diameter, and five or six inches in length; *hammering* hardens it—and the softer it is, the more satisfactory will be the result.

And idea has just struck me while writing this, to try the effect of magnetising the magnetic pole, also the electrical, in this experiment, particularly on those in whom the magnetism does not appear to be shown; likewise to ascertain if electrical sparks can be drawn from a glass, or brass rod held in the hand of a somnipathist, while the pole of electricity is magnetised—to be tried in a room darkened.

Although, at present, these experiments appear to be of no particular benefit to sick persons, yet they are of great importance in proving the truth of the science.

JOHN KING, M. D.

New Bedford, Mass., October, 1842.

NOTE BY THE EDITOR.—Of course, we are not to be considered responsible for articles which we publish, like the above, over a responsible name.

With regard to what is stated, 1 and 3, we may add, that others have affirmed to us that they had done, and seen others perform, the same, under circumstances where there could be no collusion or mistake. And if so, these facts do unquestionably demonstrate the *identity* between what is called the *nervous influence* and the ordinary *magnetic forces*.

THE MORAL FACULTY.

BY THE LATE BENJ. RUSH, M.D.

1. The effects of CLIMATE upon the moral faculty claim our first attention. Not only individuals, but nations, derive a considerable part of their moral, as well as intellectual character, from the different portions they enjoy of the rays of the sun. Irascibility, levity, timidity, and indolence, tempered with occasional emotions of benevolence, are the moral qualities of the inhabitants of warm climates, while selfishness, tempered with sincerity and integrity, form the moral character of the inhabitants of cold countries. The state of the weather, and the seasons of the year also, have a visible effect upon moral sensibility. The month of November, in Great Britain, rendered gloomy by constant fogs and rains, has been thought to favour the perpetration of the worst species of murder, while the vernal sun, in middle latitudes, has been generally remarked for producing gentleness and benevolence.

2. The effects of DIET upon the moral faculty are more certain, though less attended to, than the effects of climate. "Fullness of bread," we are told, was one of the predisposing causes of the vices of the Cities of the Plain. The fasts so often inculcated among the Jews were intended to lessen the incentives to vice; for pride, cruelty, and sensuality, are as much the natural consequences of luxury, as apoplexies and palsies. But the *quality* as well as the quantity of aliment has an influence upon morals; hence we find the moral diseases that have been mentioned are most frequently the offspring of animal food. The prophet Isaiah seems to have been sensible of this, when he ascribes such salutary effects to a temperate and vegetable diet. "Butter and honey shall he eat," says he, "*that* he may know to refuse the evil, and to choose the good." But we have many facts which prove the efficacy of a vegetable diet upon the passions. Dr. Arbuthnot assures us, that he cured several patients of irascible tempers, by nothing but a prescription of this simple and temperate regimen.

3. The effects of CERTAIN DRINKS upon the moral faculty are not less observable, than upon the intellectual powers of the mind. Fermented liquors, of a good quality, and taken in a moderate quantity, are favourable to the virtues of candour, benevolence, and generosity; but when they are taken in excess, or when they are of a bad quality, and taken in a moderate quantity, they seldom fail of rousing every latent spark of vice into action. The last of these facts is so notorious, that when a man is observed to be ill-natured or quarrelsome in Portugal, after drinking, it is common in that country to say, that "he has drunken bad wine." While occasional fits of intoxication produce ill-temper in many people, habitual drunkeness (which is generally produced by distilled spirits) never fails to eradicate veracity and integrity from the human mind. Perhaps this may be the reason why the Spaniards, in ancient times, never admitted a man's evidence in a court of justice, who had been convicted of drunkenness. Water is the universal sedative of turbulent passions: it not only promotes a general equanimity of temper, but it composes anger. I have heard several well-attested cases, of a draught of cold water having suddenly composed this violent passion, after the usual remedies of reason had been applied to no purpose.

4. EXTREME HUNGER produces the most unfriendly effects upon moral sensibility. It is immaterial, whether it act by inducing a relaxation of the solids, or an acrimony of the fluids, or by the combined operations of both those physical causes. The Indians in this country whet their appetites for that savage species of war, which is peculiar to them, by the stimulus of hunger; hence, we are told, they always return meagre and emaciated from their military excursions. In civilized life we often behold this sensation to overbalance the restraints of moral feeling; and perhaps this may be the reason why poverty, which is the most frequent parent of hunger, disposes so generally to theft; for the character of hunger is taken from that vice; it belongs to it "to break through stone walls." So much does this sensation predominate over reason and moral feeling, that Cardinal de Retz suggests to politicians never to risk a motion in a popular assembly, however wise or just it may be, immediately before dinner. That temper must be uncommonly guarded, which is not disturbed by long abstinence from food. One of the worthiest men I ever knew, who made his breakfast his principal meal, was peevish and disagreeable to his friends and family, from the time he left his bed till he sat down to his morning repast; after which, cheerfulness sparkled in his counte-

nance, and he became the delight of all around him.

5. I hinted formerly, in proving the analogy between the effects of DISEASES upon the intellects, and upon the moral faculty, that the latter was frequently impaired by fevers and madness. I beg leave to add further upon this head, that not only madness, but the hysteria and hypochondriasis, as well as all those states of the body, whether idiopathic or symptomatic, which are accompanied with preternatural irritability—sensibility—torpor—stupor or mobility of the nervous system, dispose to vice, either of the body or of the mind. It is in vain to attack these vices with lectures upon morality. They are only to be cured by medicine,—particularly by exercise,—the cold bath,—and by a cold or warm atmosphere. The young woman, whose case I mentioned formerly, that lost her habit of veracity by a nervous fever, recovered this virtue, as soon as her system recovered its natural tone, from the cold weather that happily succeeded her fever.*

6. Idleness is the parent of every vice. It is mentioned in the Old Testament as another of the predisposing causes of the vices of the Cities of the Plain. Labor of all kinds favors and facilitates the practice of virtue. The country life is happy, chiefly because its laborious employments are favorable to virtue, and unfriendly to vice. It is a common practice, I have been told, for the planters in the southern states, to consign a house slave, who has become vicious from idleness, to the drudgery of the field, in order to reform him. The bridewells and workhouses of all civilized countries prove, that LABOR is not only a very severe, but the most benevolent of all punishments, in as much as it is one of the most suitable means of reformation. Mr. Howard tells us in his History of Prisons, that in Holland it is a common saying, "Make men work and you will make them honest." And over the rasp and spinhouse at Grœningen, this sentiment is expressed (he tells us) by a happy motto:

"Vitiorum semina—otium—labore exhauriendum"

The effects of steady labor in early life, in creating virtuous habits, is still more remarkable. The late Anthony Benezet of this city, whose benevolence was the sentinel of the virtue, as well as of the happiness of his country, made it a constant rule in binding out poor children, to avoid putting them into wealthy families, but always preferred masters for them who worked themselves, and who oblige these children to work in their presence. If the habits of virtue, contracted by means of this apprenticeship to labor, are purely mechanical, their effects are nevertheless, the same upon the happiness of society, as if they flowed from principle. The mind, moreover, when preserved by these means from weeds, becomes a more mellow soil afterwards, for moral and rational improvement.

7. The effects of EXCESSIVE SLEEP are intimately connected with the effects of idleness on the moral faculty; hence we find that moderate, and even scanty portions of sleep, in every part of the world, have been found to be friendly, not only to health and long life, but in many instances to morality. The practice of the monks, who often sleep upon a floor, and who generally rise with the sun, for the sake of mortifying their sensual appetites, is certainly founded in wisdom, and has often produced the most salutary moral effects.

8. The effects of BODILY PAIN upon the moral, are not less remarkable than upon the intellectual powers of the mind. The late Dr. Gregory, of the University of Edinburgh, used to tell his pupils, that he always found his perceptions quicker in a fit of the gout, than at any other time. The pangs which attend the dissolution of the body, are often accompanied with conceptions and expressions upon the most ordinary subjects, that discover an uncommon elevation of the intellectual powers. The effects of bodily pain are exactly the same in rousing and directing the moral faculty. Bodily pain, we find, was one of the remedies employed in the Old Testament, for extirpating vice and promoting virtue: and Mr. Howard tells us, that he saw it employed successfully as a means of reformation, in one of the prisons which he visited. If pain has a physical tendency to cure vice, I submit it to the consideration of parents and legislators, whether moderate degrees of corporeal punishments, inflicted for a great length of time, would not be more medicinal in their effects, than the violent degrees of them, which are of short duration.

9 Too much cannot be said in favour of CLEANLINESS, as a physical means of promoting virtue. The writings of Moses have been called, by military men, the best "orderly book" in the world. In every part of them we find cleanliness inculcated with as much zeal, as if it was part of the moral, instead of the Levitical law. Now, it is well known, that the principal design of every precept and rite of the ceremonial parts of the Jewish religion, was to prevent vice, and to promote virtue. All writers upon the leprosy, take notice of its connection with a certain vice. To this disease gross animal food, particularly swine's flesh, and a dirty skin, have been thought to be predisposing causes—hence the reason, probably, why pork was forbidden, and why ablutions of the body and limbs were so frequently inculcated by the Jewish law. Sir John Pringle's remarks, in his oration upon Captain Cook's Voyage, delivered before the Royal Society in London, are very pertinent to this part of our subject:—"Cleanliness (says he) is conducive to health, but is it not obvious, that it also tends to good order and other virtues? Such (meaning the ship's crew) as were made more cleanly, became more sober, more orderly, and more attentive to their duty." The benefit to be derived by parents and schoolmasters from attending to these facts, is too obvious to be mentioned.

10. I hope I shall be excused in placing SOLITUDE among the physical causes which influence the moral faculty, when I add, that I confine its effects to persons who are irreclaimable by rational or moral remedies. Mr. Howard informs us, that the chaplain of the prison at Liege in Germany assured him, "that the most refractory and turbulent spirits, became tractable and submissive, by being closely confined for four or five days." In bodies that are predisposed to vice, the stimulus of cheerful, but

* There is a morbid state of excitability in the body during the convalescence from fever, which is intimately connected with an undue propensity to venereal pleasures. I have met with several instances of it. The marriage of the celebrated Mr. Howard to a woman who was twice as old as himself, and very sickly, has been ascribed by his biographer, Dr. Aiken, to gratitude for her great attention to him in a fit of sickness. I am disposed to ascribe it to a sudden paroxysm of another passion, which, as a religious man, he could not gratify in any other than in a lawful way. I have heard of two young clergymen, who married the women who had nursed them in fits of sickness. In both cases, there was great inequality in their years and condition of life. Their motive was, probably, the same as that which I have attributed to Mr. Howard. Dr. Patrick Russel takes notice of an uncommon degree of venereal excitability which followed attacks of the plague at Messina, in 1743, in all ranks of the people. Marriages, he says, were more frequent after it than usual; and virgins were in some instances violated, who died of that disease, by persons who had just recovered from it.

much more of profane society and conversation, upon the animal spirits, becomes an exciting cause, and like the stroke of the flint upon the steel, renders the sparks of vice both active and visible. By removing men out of the reach of this exciting cause, they are often reformed, especially if they are confined long enough to produce a sufficient chasm in their habits of vice. Where the benefit of reflection, and instruction from books, can be added to solitude and confinement, their good effects are still more certain. To this philosophers and poets in every age have assented, by describing the life of a hermit as a life of passive virtue.

11. Connected with solitude, as a mechanical means of promoting virtue, SILENCE deserves to be mentioned in this place. The late Dr. Fothergill, in his plan of education for that benevolent institution at Ackworth, which was the last care of his useful life, says every thing that can be said in favour of this necessary discipline, in the following words: "To habituate children from their early infancy, to silence and attention, is of the greatest advantage to them, not only as a preparative to their advancement in a religious life, but as the groundwork of a well-cultivated understanding. To have the active minds of children put under a kind of restraint—to be accustomed to turn their attention from external objects, and habituated to a degree of abstracted quiet, is a matter of great consequence, and lasting benefit to them. Although it cannot be supposed, that young and active minds are always engaged in silence as they ought to be, yet to be accustomed thus to quietness, is no small point gained towards fixing a habit of patience, and recollection, which seldom forsakes those who have been properly instructed in this entrance of the school of wisdom, during the residue of their days."

For the purpose of acquiring this branch of education, children cannot associate too early, nor too often with their parents, or with their superiors in age, rank, and wisdom.

12. The effects of music upon the moral faculty, have been felt and recorded in every country. Hence we are able to discover the virtues and vices of different nations, by their tunes, as certainly as by their laws. The effects of music, when simply mechanical, upon the passions, are powerful and extensive. But it remains yet to determine the degrees of moral ecstacy, that may be produced by an attack upon the ear, the reason, and the moral principle, at the same time, by the combined powers of music and eloquence.

13. The ELOQUENCE of the PULPIT is nearly allied to music in its effects upon the moral faculty. It is true there can be no permanent change in the temper and moral conduct of a man, that is not derived from the understanding and the will; but we must remember that these two powers of the mind are most assailable, when they are attacked through the avenue of the passions; and these, we know, when agitated by the powers of eloquence, exert a mechanical action upon every power of the soul. Hence we find, in every age and country where Christianity has been propagated, the most accomplished orators have generally been the most successful reformers of mankind. There must be a defect of eloquence in a preacher, who, with the resources for oratory which are contained in the Old and New Testaments, does not produce in every man who hears him at least a temporary love of virtue. I grant that the eloquence of the pulpit alone cannot change men into Christians, but it certainly possesses the power of changing brutes into men. Could the eloquence of the stage be properly directed, it is impossible to conceive the extent of its mechanical effects upon morals. The language and imagery of a Shakespeare, upon moral and religious subjects, poured upon the passions and the senses, in all the beauty and variety of dramatic representation; who could resist, or describe their effects?

14. ODOURS of various kinds have been observed to act in the most sensible manner upon the moral faculty. Brydone tells us, upon the authority of a celebrated philosopher in Italy, that the peculiar wickedness of the people who live in the neighborhood of Ætna and Vesuvius is occasioned chiefly by the smell of the sulphur, and of the hot exhalations which are constantly discharged from those volcanoes. Agreeable odours seldom fail to inspire serenity, and to compose the angry spirits. Hence the pleasure, and one of the advantages, of a flower-garden. The smoke of tobacco is likewise of a composing nature, and tends not only to produce what is called a train in perception, but to hush the agitated passions into silence and order. Hence the practice of connecting the pipe or cigar and the bottle together, in public company.

15. It will be sufficient only to mention LIGHT and DARKNESS, to suggest facts in favour of the influence of each of them upon moral sensibility. How often do the peevish complaints of the night in sickness, give way to the composing rays of the light of the morning? Othello annot murder Desdemona by candle-light, and who has not felt the effect of a blazing fire upon the gentle passions?*

16. It is to be lamented, that no experiments have as yet been made, to determine the effects of all the different species of AIRS, which chemistry has discovered, upon the moral faculty. I have authority, from actual experiments, only to declare, that dephlogisticated air, when taken into the lungs, produces cheerfulness, gentleness, and serenity of mind.

17. What shall we say of the effects of MEDICINES upon the moral faculty? That many substances in the materia medica act upon the intellects is well known to physicians. Why should it be thought impossible for medicines to act in like manner upon the moral faculty? May not the earth contain, in its bowels, or upon its surface, antidotes? But I will not blend facts with conjectures. Clouds and darkness still hang upon this part of my subject.

Let it not be suspected, from any thing that I have delivered, that I suppose the influence of physical causes upon the moral faculty renders the agency of divine influence unnecessary to our moral happiness. I only maintain, that the operations of the divine government are carried on in the moral, as in the natural world, by the instrumentality of second causes. I have only trodden in the footsteps of the inspired writers; for most of the physical causes I have enumerated are connected with moral precepts, or have been used as the means of reformation from vice, in the Old and New Testaments. To the cases that have been mentioned, I shall only add, that Nebuchadnezzar was cured of his pride, by means of solitude and a vegetable diet. Saul was cured of his evil spirit, by means of David's harp, and St. Paul expressively says, "I keep my body under, and bring it into subjection, lest that by any means, when I have preached to others, I myself should be a cast-away." But I will go one step further, and add, in favour of divine influence upon the

* The temperature of the air has a considerable influence upon moral feeling. Henry the Third, of France, was always ill-humoured, and sometimes cruel, in cold weather. There is a damp air which comes from the sea in Northumberland county in England, which is known by the name of the 'sea-fret,' from its inducing fretfulness in the temper.

moral principle, that in those extraordinary cases, where bad men are suddenly reformed, without the instrumentality of physical, moral or rational causes, I believe that the organization of those parts of the body, in which the faculties of the mind are seated, undergoes a physical change;* and hence the expression of a "new creature," which is made use of in the Scriptures to denote this change, is proper in a literal, as well as a figurative sense. It is probably the beginning of that perfect renovation of the human body, which is predicted by St. Paul in the following words: "For your conversation is in heaven, from whence we look for the Saviour, who shall change our vile bodies, that they may be fashioned according to his own glorious body." I shall not pause to defend myself against the charge of enthusiasm in this place; for the age is at length arrived so devoutly wished for by Dr. Cheyne, in which men will not be deterred in their researches after truth, by the terror of odious or unpopular names.

I cannot help remarking under this head, that if the conditions of those parts of the human body which are connected with the human soul influence the morals, the same reason may be given for a virtuous education, that has been admitted for teaching music, and the pronunciation of foreign languages, in the early and yielding state of those organs which form the voice and speech. Such is the effect of a moral education, that we often see its fruits in advanced stages of life, after the religious principles which were connected with it have been renounced; just as we perceive the same care in a surgeon in his attendance upon patients, after the sympathy which first produced his care has ceased to operate upon his mind. The boasted morality of the deists is, I believe, in most cases, the offspring of habits, produced originally by the principles and precepts of christianity. Hence appears the wisdom of Solomon's advice, "Train up a child in the way he should go, and when he is old he will not," I had almost said he cannot "depart from it."

Thus have I enumerated the principal causes which act mechanically upon morals. If, from the combined action of physical powers that are opposed to each other, the moral faculty should become stationary, or if the virtue or vice produced by them should form a neutral quality, composed of both of them, I hope it will not call in question the truth of our general propositions. I have only mentioned the effects of physical causes in a simple state.†

It might help to enlarge our ideas upon this subject to take notice of the influence of the different stages of society, of agriculture and commerce, of soil and situation, of the different degrees of cultivation of taste, and of the intellectual powers, of the different forms of government, and, lastly, of the different professions and occupations of mankind upon the moral faculty; but as these act indirectly only, and by the intervention of causes that are unconnected with matter, I conceive they are foreign to the business of the present inquiry. If they should vary the action of the simple physical causes in any degree, I hope it will not call in question the truth of general propositions, any more than the compound action of physical powers that are opposed to each other. There remain but a few more causes which are of a compound nature, but they are so nearly related to those which are purely mechanical, that I should beg leave to trespass upon your patience, by giving them a place in my oration.

The effects of imitation, habit, and association, upon morals, would furnish ample matter for investigation. Considering how much the shape, texture, and conditions of the human body influence morals, I submit it to the consideration of the ingenious, whether, in our endeavours to imitate moral examples, some advantage may not be derived, from our copying the features and external manners of the originals. What makes the success of this experiment probable is, that we generally find men, whose faces resemble each other, have the same manners and dispositions. I infer the possibility of success in an attempt to imitate originals in a manner that has been mentioned, from the facility with which domestics acquire a resemblance to their masters and mistresses, not only in manners, but in countenance, in those cases where they are tied to them by respect and affection. Husbands and wives also where they possess the same species of face, under circumstances of mutual attachment often acquire a resemblance to each other.

From the general detestation in which hypocrisy is held, both by good and bad men, the mechanical effects of habit upon virtue have not been sufficiently explored. There are, I am persuaded, many instances, where virtues have been assumed by accident or necessity, which have become real from habit, and afterwards derived their nourishment from the heart. Hence the propriety of Hamlet's advice to his mother:

> "Assume a virtue, if you have it not.
> That monster, Custom, who all sense doth eat
> Of habits evil, is angel yet in this,
> That to the use of actions fair and good,
> He likewise gives a frock or livery,
> That aptly is put on. Refrain to-night,
> And that shall lend a kind of easiness
> To the next abstinence; the next more easy;
> For use can almost change the stamp of nature,
> And master even the devil, or throw him out,
> With wondrous potency."

Important Surgical Operation.—An operation for the terrible disease called Ostea Sarcomo, was performed at Baltimore on Tuesday, upon a colored man, by Dr. C. B. Gibson, assisted by several other doctors, the result of which is described in the American. The patient received a blow on the chin, from the handle of a plough about six years ago, and thus the osseofibrous tumor was formed, and gradually increased until it had become frightful in the extreme—the tumor nearly filled the mouth, and pushing out the lower lip to a great extent. The operation consisted in removing the lower jaw as far back as the second molar tooth, the disease embracing all that portion. This disease is said to be one of the most dreadful in surgery, and has not often been performed, we understand, in this country. At the close of the operation, the poor fellow seemed to have sustained the shock with so much firmness as to induce the hope that his life will be saved. The nerve with which he endured the knife and the saw was astonishing.

Controversy.—A game, in which Destructiveness, Self-Esteem and Approbativeness, are apt to get the better of Conscientiousness.

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* St. Paul was suddenly transformed from a persecutor into a man of a gentle and amiable spirit. The manner in which this change was effected upon his mind, he tells us in the following words: "Neither circumcision availeth any thing, nor uncircumcision, but a new creature. From henceforth let no man trouble me; for I bear in MY BODY the MARKS of our Lord Jesus." Galatians, vi. 15, 17.

† The doctrine of the influence of physical causes on morals, is happily calculated to beget charity towards the failings of our fellow-creatures. Our duty to practise this virtue is enforced by motives drawn from science, as well as from the precepts of Christianity.

THE MAGNET.

NEW YORK, DECEMBER, 1842.

DR. BUCHANAN'S LECTURES.

Some of our readers will, probably, remember the notice we gave in our second number, of a work entitled "Sketches of Buchanan's Discoveries in Neurology," and the desire we then expressed to become better acquainted with the true nature of that *new agent*, which the author of that work thought he had added to our "therapeutic list."

During the past month, we have enjoyed the pleasure of hearing him in a course of six lectures, delivered in this city, in which he gave a full account of what he calls Neurology, and the benefits which it promises to the science of Phrenology and the healing art. The audiences were rather small, and, as far as we could learn, they were generally disappointed in what they were permitted to hear and see from Dr. Buchanan, on the subject of Neurology. The disappointment is not so much to be wondered at, perhaps, when we consider, that a large number of those who heard him were familiar with the subject of human magnetism, and the phreno-magnetic experiments heretofore described in our columns.

In his first lecture, the Doctor made one statement which surprised us, as, from the examination of his book, we had been led to infer, that he did not feel himself at all indebted to what has been called human magnetism for any of his discoveries. The statement was this—that after he had devoted some years to the study of the physiology of the brain, and brought out some of its functions by *galvanism*, on hearing of the experiments in animal magnetism, in which portions of the system were excited or paralysed at the will of the operator, it occurred to him that portions of the *brain* might be operated on in the same way; and on making the attempt, he found the brain susceptible to the mere application of the fingers to the head.*

As Dr. Buchanan has now come so directly before us, our readers will of course expect a few remarks from us, expressive of our views as to his theory, and the merits of "Neurology." But, as we have had no other opportunity for becoming acquainted with him or his experiments, than what was afforded others during his public lectures, we shall not attempt many details, lest we should do him injustice; and this we certainly would not willingly do, as we consider him a gentleman of good talents, and one who has evidently paid considerable attention to the physiology and functions of the human brain.

We have said his audiences were *disappointed*. They were promised, in his public notices, that his new theory would be illustrated by a course of experiments after each lecture. This promise, however, the Doctor did not think it best to carry out so extensively as was anticipated, and it operated considerably to his disadvantage.—And most that heard him, had read the accounts published of the wonders of Neurology; they had been assured, that the wonderful developments made by Dr. B. had left all other experimenters in the shade; that neurology was destined to revolutionize the science of phrenology, and the materia medica; that it outstripped the wonders heretofore produced by magnetism, "with its mysterious passes," and indeed, that "such had been" his progress "in discovering the functions of the brain, "that but few important principles were left for future discovery." He had found the key which unlocked the temple of science, and walked in and taken possession of its untold treasures. The anticipations of something most extraordinary from Dr. Buchanan were raised, certainly, by himself. His book authorised expectations of no ordinary character, and if the Dr. has not been able to meet those expectations, it is, surely, his own fault. Any one who examines the pages of his book, will see at once, that the Dr. himself, has expressed hopes and anticipations of a most extraordinary kind, in regard to his discoveries; and sometimes, language would seem almost too poor to do justice to his theme.

But it will be asked, how he must be considered as the cause of this disappointment? From the first, he has assumed that the *agency* by which he has operated on the human brain, was *a discovery of his own*—that it was distinct, and altogether different from what has been known under the name of magnetism. Indeed, he undertook to maintain this very ground, in this course of lectures. He assumed, that the human brain evolves *electricity, galvanism, magnetism*, and the "*Neuaura*," as he called it; and that these influences are distinct, and not at all identical with each other.

Now, we never were solicitous about the name of this agency, but we put it to any one acquainted with Dr. Buchanan's experiments, to say, wherein the agency differs from that used by Mesmer and Puysegur, and every magnetist who has succeeded in the removal of pain by manipulating the parts affected? Wherein does it differ from the touch, by which the seventh son has long been reputed for curing the "king's evil?" Wherein does it differ from the influence which the touch of the human hand has been known to produce on the human system from time immemorial? Indeed, it was for the best of reasons that the press has so generally called the Dr.'s operations "mesmerism" and "animal magnetism in *disguise*;" for, until the Doctor can show the real difference between electricity, magnetism, and galvanism, and especially between that *agency* heretofore known under the term of "animal magnetism," and the agency by which he operates upon the brain, his neurology will be consi-

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* Whether those experiments by magnetism were the same described in the New-York Watchman (copies of which were sent to Dr. B. at the time) in August, 1841, or not, we have no means of determining. We may add, however, that we have never seen any account of any MANUAL excitement of the separate organs of the brain, which were PUBLISHED previous to those in the Watchman above alluded to, and which were performed by ourself, in this city, in the summer and fall of 1841. If Dr. Buchanan, or any other person, will forward to us any account of any SUCH experiments, which were PUBLISHED previous to the time here referred to, we will give them a place in the Magnet. The accounts must state, expressly, that the excitements were produced merely by the application of the fingers to the organs.

We make this offer, because Dr. B. has intimated, in a letter addressed by him to the Cincinnati Phreno-Magnetic Society, (and in other forms, as we have been told,) that we copied our experiments from him! An INSINUATION which one sustaining the relations to SCIENCE which Dr B. professes to maintain, should have felt it beneath him to make of any one, except upon the clearest evidence.

dered as nothing more nor less than "animal magnetism" under a new name.

Let us look at this matter a little more closely. Dr. B. says, that by placing his fingers in any one place, he can cause the brain to evolve pure electricity, in another pure galvanism, in another pure magnetism, and in a fourth the pure *neuaura*. Very well. And now will he tell us, by what agency *he* causes these *different* results to appear? Does his own system evolve each of these imponderable fluids, at *will?* or does he evolve nothing but *neuaura*, while he causes his subject to throw out these different substances? If so, then the *neuaura* has control over the electrical, magnetic, and galvanic forces; and if these forces do not differ in their nature in the human system, from what they are known to be in minerals, then we should like to know, why this neuaura would not control the needle, as well as the magnetic forces in the human body?

We have supposed, and so stated, that the magnetic or electrical forces, *in a modified form*, constituted that influence which one person is known to exert over another by the ordinary manipulations; and we have already given an account of numerous experiments, which go far towards identifying these forces and the nervous influence of the human body. Whether we are correct or not, must be determined by facts. We wish to follow where truth leads the way; we have no favorite theory to defend or build up, either under a new or an old name.—Give us the facts; and all the theories in the universe may go to the four winds of heaven.

In the notice of Dr. Buchanan's book, we felt compelled to state the conviction, which its perusal forced upon our mind, that its author could not have been well acquainted with the precise nature of the "agency" which he assumed to have "added to our therapeutic list;" and fidelity to truth and science now force us to the same statement again, and of its justice we are more deeply convinced than before. But it is by no means pleasant to feel necessitated to make a remark of this kind, of one of whom so many good things might be said. But we see (what must have been too obvious to those who heard the Doctor's lectures), that he has vastly overated the importance of his discoveries. The extraordinary developments which followed his experiments, have evidently so completely sublimated his own mind, that he has been led astray, in some instances at least, from the facts and the dictates of sound philosophy.

We do not say that Dr. B. has not based his theory on the observation of facts: what we mean is, that he has been misled by the kind of facts to which he appeals—they were facts of an exclusive character, and resulted from the operation of an influence which he does not sufficiently understand. This is susceptible of the clearest demonstration. For instance: he lays it down as a fundamental principle in his theory, that the portion of the brain covered by the hand, when it is placed on and around the chin, *invariably* evolves caloric; and that when any results follow this operation, they will correspond with this assumption. Now we know that this assumption cannot be supported by an appeal to facts. In some, these results will follow this operation; and in others, the same results may be produced in various other ways. Two gentlemen came into our office a few days since, enraptured by the effects which had just been produced in their systems by Dr. Buchanan. On their stating what their sensations were, we immediately produced the same, in a far greater degree, by operating on another part of the brain. So, Dr. B. affects the arms, for instance, by operating on one portion of the brain, and we do the same thing by operating on another. Now, what do these facts prove? Why, evidently, that the nerves of motion and sensation are susceptible from different points of the body, and in a manner of which Dr. B. seems to have no idea. The great law which controls these results, is nothing more nor less than SYMPATHY; and Dr. B. will probably find, sooner or later, that he has yielded too much in the importance he has given to the results of his experiments, proving, as he thinks they do, that he has discovered a *new* agency, which invariably controls the nervous system, as he states, and are altogether distinct from any heretofore known.

Nor do we see how the world is to be much benefited, even admitting the claims which Dr. B. sets up for himself. He thinks, that not more than one person in every thousand is susceptible to what he calls the highest degree; about one in a hundred is partially so, while the rest cannot be affected by his operations at all. If we allow his meaning of the term *impressible*, we must admit the truth of this assumption. But what will follow? Why, that the wonderful benefits of *neurology* can only be fully realized by one in a thousand of the entire community, and in a very small degree by one in a hundred. And it would further appear, that this susceptibility of which he speaks, is owing to a diseased state of the nervous system; and that it is the exception, and not the rule, to be applied to the entire mass of human beings.

When we consider the opportunities which Dr. B. affirms he has enjoyed for testing the susceptibility and functions of the human brain, it would seem quite remarkable that he has not found out the most important fact with regard to this subject; and that he has not yet arrived at this knowledge is evident, inasmuch as it is no where even alluded to in his work, nor did he advance anything in his recent lectures which had any perceptible bearing on this fact. Indeed, no writer that we have ever read has alluded to it, that we now remember. We refer, now, to the *difference* in the *susceptibilities* of different persons. We had proceeded but a small distance in our experiments, before we were driven to this conclusion—different persons have different susceptibilities.—The following will illustrate our meaning: A relative of ours was so affected with the smell of onions, as to be unable to remain in the house whey they were; and, it is said, Henry the Third, of France, could not endure the presence of a cat; Lord Chancellor Bacon fell down in fits whenever there was an eclipse of the moon; the philosopher Boyle could not endure the sound of water drawn from a cock; Erasmus trembled at the smell or sight of fish; Marshall d'Albert fainted at the sight of a sucking pig; La Mollie la Vayer could not endure the sound of music, and Shakspeare speaks of some persons in his day who could not endure the sound of the bagpipe. The celebrated astronomer Brahe, was totally paralyzed in his limbs at the sight of a live hare; and we have known in-

tell gent persons who could not endure the sight of a rat. Some persons are peculiarly affected on touching certain kinds of metals, and others are affected in the same way if they touch them only in their imaginations. Dr. B. tests the susceptibility of persons, by grasping any metallic substance, which he directs them to hold in the hand. If they feel a sensation of numbness, or the like, he thinks they are more or less susceptible. But we know of individuals who are affected in precisely the same way, when no other person takes hold of the crowbar! But of this phenomenon Dr. B.'s neurology affords no satisfactory solution.

The Doctor's remarks on phrenology, in our opinion not only did that subject some injustice, but they were inconsistent with himself; and lest we may be thought uncharitable in these remarks, we will here give an extract from the reports of his lectures, which appeared in the New-York Express:—

"The comparison of external form, in different heads, could not be relied upon, and fall far short of the truth. These observations were entirely inadequte to explain the elements of character. By no process of examining the different contours of different skulls, could the truth be arrived at. By mere size, the structure and form of no organ could be judged, any more than could the muscular strength of the arm by the size. In matters of vitality, size was not at all to be relied on. If any portion of the brain had been exercised, it would be active without any more development than might be seen in the persons of those whose corresponding organs had not been thus active. There might be ninety-nine heads picked out, exhibiting the same forms as were seen in the head of Lord Byron, and some of these ninety-nine might have the same genius as Byron, while others would be of moderate talents, and others of the number even stupid. You could not rely even upon the comparative development of the power of these organs.

"These, said Dr. Buchanan, are not theories, but facts. I will, said he, undertake to pick out forty or fifty convicts from the State Prison, whose heads shall exhibit all the moral qualities as strongly as the heads of the most virtuous in the community. Nature, it was argued, had not been so unkind as to put a mark upon the creatures of Providence—nature had given us good and sure propensities. If we cultivated the moral propensities, they would be active; if we neglect them, the evil ones would be in force.

"I have, said Dr. B., more than 300 skulls, most of them of criminals. In all these, the organs about the base of the brain were active. The higher organs were not active. By mere craniology, it was obvious the moral or criminal character could not be determined. Dr. Buchanan here spoke of the relative activity of the moral powers in man and woman. His experience went to show, that the moral power of women was much stronger than that of men, and for the obvious reason that woman, moving in her natural sphere of action, cultivated the moral character more than the man. In all the experiments of the two sexes, phrenology was found to be quite inaccurate."

Those who heard the Doctor will agree with us, we think, that the above sketch is not so severe as in the delivery. In his last lecture, he had much to say against the practice heretofore adopted of 'mapping off the head,' and giving different lines to the different organs; and, before he got through with his lecture, he admitted that he himself did the same thing, in substance. That is—he first found the location of one organ, and them from that centre he calculated and easily found all the rest; because each one held a position and definite relation to each of the others.

But we find ourselves straitened for room, and must defer further remarks for the present.

QUERIES ANSWERED.

The following Queries have been submitted to us by a correspondent, as will be seen by an article in our present number:—

1. *Is it proper to wake up a person from the magnetic sleep, when he is under any excitement?*

Certainly not. All excitement should always be removed, before the patient is waked up; and great care should always be taken to remove the excitement from each organ in which it may have been produced. We have known mischievous results to follow these excitements, and have before suggested, that they should be attempted with great caution, and only for good and justifiable purposes.

2. *Is it proper to let the somnipathist eat when alimentativeness is magnetically excited?*

No, not to any considerable extent. These excitements of course are morbid, or beyond the demands of nature, and should be continued but a few moments at a time.—It must be plain, that the stomach should not be unnaturally excited, nor, when so excited, should it be overloaded with food.

3. *How long, in certain complaints, should the magnetic slumber be continued?*

No definite rule can be given—the operator should use his own judgment A few hours, daily, may be sufficient; but where persons are indisposed, of course no experiments like those referred to by our correspondent should be attempted.

4. *Why is one more susceptible to the magnetic influence than another?*

We could no more answer this question in a few lines, than we could tell why one mineral substance is a better conductor of the natural magnetic forces than another.—All we know is, that persons of one temperament are more easily affected by others, of another peculiar temperament; but why it is so, who can tell? We have our own conjectures about it, but it would be hardly worth the while to state them at length. If the assumptions with regard to *positive* and *negative* electricity, or magnetism, are true, it may be that one person, whose state is positive, may operate with greater facility on another, whose state is negative, or vice versa However, we know that this rule does not seem to hold good in human magnetism; for these states do not attract or operate reciprocally, which they would do if they perfectly corresponded with the laws which govern the natural magnetic forces. For instance: the north pole of the magnet attracts the south pole, and the south pole equally attracts the north. But the patient who is easily put into the magnetic sleep, cannot as easily affect the operator, nor, indeed, any other person. Nor can the same person, at all times, be as easily affected by the same means.

HUMAN AND TERRESTRIAL MAGNETISM.

We have adduced a number of facts, which go far, as we think, towards demonstrating some identity between

human and terrestrial magnetism. A correspondent has given us the following. He had repeatedly magnetised two persons, in a room where the floor was supported by iron rods, and iron and steel abounded in various parts of it. He noticed, that whenever they walked in a magnetised state within a few feet of a rod, it sensibly drew them towards it; and they were prevented from coming in contact by his placing himself between them and the rod. In one instance, when the magnetiser was a few feet in advance of one of them, she stopped, after passing the rod; suspecting the cause, he hesitated a moment, and she was drawn backward against it, contrary to his wishes; he, not knowing the consequences, wished to avoid the experiment. It produced convulsive motions, and a shudder, as if very cold, with more or less action during the sleep. She said she was not cold, but it was the effect of the iron.

In another instance, while M. P. was sitting in a magnetised state near a table, on which iron wire cloth was fastened, the magnetiser went some paces from her and beckoned her to follow, although she seemed uneasy and made some efforts, she did not follow, as had uniformly been the case before, at a less distance. Suspecting there was something to destroy the attraction, he approached nearer and repeated the beckoning, when she arose while he went to a farther distance; but instead of her following, she turned, stepped toward the table, and placed her hands on the wire before he had time to prevent it. At another time, while sitting with a large knife lying on the table behind with the point towards her, she put her hand behind her, and was in the act of reaching for the point, and was within a few inches of it when discovered. Whether the attracting power of the magnetiser was less while advancing towards the patient, was not ascertained; but in the instances named, they were approaching the objects before any advance was made, but had not reached them.

We have a patient, whose hands and muscles are severely paralyzed, whenever we touch her with any metallic substance.

CORRESPONDENCE.

We have received some further accounts of the case of surgery, described by our friend L. N. Fowler, in our fourth number. The following letter is from him:

Haverhill, Mass., Sept. 16, 1842.

Dear Sir,—The insane person I wrote to you about is getting better, and she says she knows she should get well if I magnetised her daily. The arm of the lady from whom the tumour was taken out, healed up in two weeks without any inflammation or discharge of matter. In regard to her appetite, which had always been poor up to the first of August: since then it has been very good. I waked her up on the 5th of August, after I had excited alimentiveness, and willed her to have a good appetite. A month after I visited her, and was informed by her and her husband, that she never had a better appetite, that she had not missed a meal since I last saw her, and that she had no desire for tea, coffee, or cucumbers, of which, before I had put her mind against them, she was very fond. Her husband added, that she now eats more in one day, than in three before she was magnetised. Formerly she had a great passion for reading, so much so, that it amounted to dissipation, and injured her health. I willed her in the magnetic sleep not to read but little; if she did, I should cause her to be confused and sleepy. From that time she lost about two-thirds of her relish for reading. After reading a few minutes she becomes tired and sleepy, and is unable to finish the article she commenced.

In writing to me upon the subject, she says it has taken her a week to read the history of Columbus, which before she would have done in half a day. I magnetised a young lady with small veneration, which organ I excited, and willed her to say her prayers every night before retiring. She informed me, afterwards, that she was unable to go to bed until she had said her prayers. I excited time and tune in another person, and the influence was apparent three days afterwards.

These and many other facts which I might mention, satisfy me, that character and health can be materially affected for weeks and months after being magnetised

Your friend, L. N. FOWLER.

Rev. La Roy Sunderland.

MEDICINAL.

CASES.

XIV. INTEMPERANCE.

Some of our readers, probably, will smile, on our representing *intemperance* as a *disease*. That it produces disease, misery, and death, all will admit; but in what sense, it will be asked, may intemperance itself be considered a disease; and what can phrenology or magnetism have to do with its cure?

Without entering upon a philosophical inquiry into the nature and effects of alcohol when taken into the stomach, or detailing the different physical remedies which have been used for preventing the use of this poison, it may be sufficient for us now to state, how far it may seem that phreno-magnetism may contribute something, at least, towards lessening the hold which this dreadful scourge has gained over the minds of men.

There can be no doubt, we think, but that there is an organ which gives a love for *stimulants*, just as another gives a love for food, and another for drink, &c. We have excited it in a number of persons, and the results have invariably been the same—a strong desire for stimulants, such as vinegar, spices, *brandy*, &c.; and accordingly, in all the cases of intemperate drinking we have examined, we have found that region of the head quite full.

The following case is in point. A gentleman called on us, who appeared to be in great trouble; and on inquiring the cause, he with some reluctance stated, that his wife (otherwise an amiable woman) had long been addicted to habits of intoxication. On our informing him that we thought it *possible* we might help her, either by advice, or by the influence of magnetism, or both, he brought her to see us. As we anticipated, those organs in her head were quite large. The second sitting she went into a sound magnetic sleep; and by *suppressing* the activity of those portions of the brain, and *exciting* their negative organs, she declared that she had no conceivable disposition to taste or touch stimulating drink of any kind. It is now three months since, and she has remained thus far perfectly cured.

XV. RHEUMATISM.

We were invited by Mr. W. Green, formerly of this city, to see an elderly lady some time since, living at No.

18 Mulberry street. On examination, we found that she had for years been able to thread her needle, sew, &c. while asleep, and her eyes fast closed. At these times she will converse with her family, and may be easily made to believe that she is holding a conversation with one of her neighbors.

On being magnetised only a few minutes, she was so much attracted by the mere touch of our hand, that she could not get away, even when exerting her strength to the utmost.

Her left ancle had been stiff, and her foot turned up in a peculiar manner, as she and her friends declared, for about twenty years. We only made a few passes over it, accompanied by an excitement of the corresponding portion of the brain, and like the man we read of in the Scriptures, she leaped up and down the room, shouting for joy. She was enabled to straighten it out more naturally than for twenty years before.

ANTHROPOLOGY.

THE NATURE OF MAN.

The following is from a German work, entitled "Theory of Pneumatology," by Dr. Jung Stilling. It proposes to show what ought to be believed concerning "Presentations, Visions, and Apparitions, according to Nature, Reason, and Scripture," and contains many interesting facts,—though we could not subscribe, by any means, to all the views of its author.

Now, as these are all of them acknowledged truths, it is astonishing and almost incomprehensible to me, how it is possible hat so many great and thinking men have not deduced from these experiments the most weighty and pregnant truths; for, from hence, just and logical inferences may be drawn, which are of the highest importance to the science of souls and spirits, and to religion likewise. We will pursue our path, and then see whither it will lead us.

It is indispensably necessary, that the rational spirit of man which is immortal, and proceeded forth from God, should have an organ by which it can act upon other beings, and they in return upon it; without this, it would have no knowledge of any thing out of itself, and would be itself a pure nonentity to every other being. Now this organ is ether, which is indestructible by any natural power, and is eternal and unchangeable. The spirit, during its sensible existence upon earth, forms to itself a spiritual luminous body, with which it continues eternally united.

The magnetic facts and experiments above stated prove to a demonstration, the existence of this spiritual luminous body, or the human soul: they further prove that this human soul has need of its gross and animal body, solely with reference to its earthly life, in which man must necessarily stand in reciprocal operation with the sensible or material world, but that it is able without it to think and feel, and to act upon others, both near and at a distance, in a much more perfect manner, and is also more susceptible of suffering and enjoyment. This conclusion must unquestionably arise in the mind of the impartial observer, when he assembles all the various exhibitions which magnetism produces, and then calmly and rationally reflects upon them.

If the human soul during its existence in the material body, from which it is not entirely detached, be capable of such wonderful things; what will its capability be when totally separated from it by death! Let the reader reflect upon this. In dying, the person loses his consciousness, he falls into a perfect trance or profound sleep. As long as the mass of blood is warm and not congealed, all the members of the body continue pliant; as long as this is the case, the soul remains in it; but as soon as the brain and nerves lose their warmth and become frigid, they can no longer attract the ethereal part of the soul, nor retain it any longer; it therefore disengages itself, divests itself of its earthly bonds, and awakes. It is now in the state of a clearseeing magnetic sleeper, but being entirely separated from the body, its state is much more perfect: it has a complete recollection of its earthly existence from beginning to end; it remembers those it has left behind, and can form to itself a very clear idea of the visible world, of which it is now no longer susceptible, whilst on the contrary, it is conscious of the invisible world and its objects: namely, that part of it to which it belongs, or to which it has here adapted itself. The candid inquirer will easily find that all this follows logically and justly from magnetic experiments, if he be acquainted with them, and duly considers them.

The objection may, and doubtless will be made, that it is still not altogether certain that the somnambulist, in a state of clear-sightedness, makes no use whatever of the brain and nerves in the ideas he forms. The answer to this is, that he certainly does not use his eyes for the purposes of vision, and that he makes just as little use of the other organs of sense for the purpose of feeling: now, as the brain is excited merely by the impressions of the outward senses, it is impossible that this can be the case here. However, in the following pages facts will be stated, which undeniably confirm my assertion.

The somnambulist has no perception of any thing in the visible world, with the exception of the souls of those individuals that are brought into a corresponding connexion, or into rapport with him: through these he learns what passes in the visible world. The soul after death, enters into connexion with those that bear the greatest affinity to its own nature: if it enter into this kind of contact with others, it feels a pain, the extent of which corresponds with the degree of difference. O happy they that have approached so near to the Redeemer, as to come into connexion with him, that is, attain to the felicity of beholding him; they will then be in communion also with all his saints! In this manner also, those friends, who much resemble each other in their moral character, will there abide together, in eternal connexion and harmonious union. From the preceding observations, we may therefore comprehend what will be the nature of communication in the world to come. The somnambulist reads in the soul of him with whom he is placed in rapport; there is no need of language for the purpose, and such also is the case after death, that one reads in the soul of the other.

We have to thank animal magnetism, which was discovered about thirty years ago, for all these important developements; but the following are not less important and instructive.

Those persons in particular, who have very irritable nerves and a lively imagination, are very soon translated by animal magnetism, into this state of somnambulism and clearness of vision, by a regular and gentle stroking of the body. By means of this discovery, it is now ascertained, that all the hysteric fits of woman, as well as hypochondriachism in men, are nothing more or less than a species of somnambulism, only that it does not arise from artificial

manipulation, but from a debilitated constitution.

Therefore when a person falls in fits, either with or without convulsions, so that he loses his consciousness, and sees visions, associates with spirits, and utters the sublimest things, which far surpass her natural sphere of knowledge, it must not on no account be regarded as any thing divine, but as a real disease, and as an aberration of nature from her regular and prescribed path. All that he says and does must be rationally examined, according to the word of God; seasonable warnings and admonitions should be attended to, but they are never, and by no means divine revelations; not even then, when such a person predicts future things, which come to pass, for he stands in connexion with the invisible world; but, as his soul is still attached to the body, the connexion is not perfect; he cannot distinguish the images of his own imagination from spirits; he knows and sees much that he did not know and see in his natural state, but it is not all real, much less divine; no regard should be paid to it, but rather every suitable means used to cure him of his disorder; for these aberrations have generally a distressing termination. Instances of this will be subsequently adduced.

The causes from which a natural magnetic sleep may proceed, are chiefly the following:—

First—a lively and very irritable nervous system, and a vivid imagination appertaining to it, both of which are generally found united.

Secondly—an incessant occupation of the soul with supernatural objects; for instance, when superstitious and ill-formed simple people are constantly thinking on bewitchments and apparations. Even if they be, at the same time, vile and reprobate characters, they may at length be brought, by this means, into a real connexion with evil spirits, and then sorcery is no longer an idle tale.

Sensual love, particularly in the female sex, is the most fertile source of magnetic fits, and hence arise horrible deceptions, particularly when religious feelings are intermixed with them. I am acquainted with many melancholy instances of this kind, to which I will not now give publicity, for the sake of persons still living.

A pious young woman visited the religious meetings, which a pious, but handsome and *married* man held in his house. By degrees she fell in love with him, and as insuperable difficulties stood in the way of her attachment, her nerves at length succumbed in the conflict, and the poor unfortunate girl became a somnambulist. At the commencement, she uttered the most sublime and glorious truths in her fits; and she generally entered the crisis when present at these religious meetings. She predicted many things that were to happen in future, several of which were accomplished. She gained a number of followers; and the most sensible and well-informed regarded her as one that was inspired by the Spirit of God, in a word, as a prophetess.

In her fits, she received information by degrees, that the wife of the object of her affections was an abomination in the sight of God and his angels. This was gradually insinuated with such Satanic cunning and hypocrisy, that the whole company, which consisted of several hundred persons, most devoutly believed it. The poor woman was therefore confined in a remote place, *by orders from the invisible world;* she lost her reason, died raving mad, and the widower then married the young woman, also by order from the invisible world. The two principal actors, and the whole of their adherents, might be innocently mistaken previous to the cruel treatment of the man's first wife. The horrid crimes of this female and her followers are known to the world, and substantiated by official documents.

A common servant girl in the North of Germany, received in a trance, the commission that she should bring forth the prince, who should bear rule under Christ in his approaching kingdom. A married clergyman, and in other respects a pious man, let himself be deceived by her; he believed her, and she really bore a son; but my readers may judge whether he will become that to which his mother had destined him. A similar event took place a few years ago in the South of Germany.

I knew a lady of sincere piety, who fell daily of herself, into a perfect magnetic sleep. In this state, she was extremely sublimely disposed, she saw Christ, associated entirely with angels, heard them sing, sang with them, and said things which were astonishing. At length, the spirit whom she took for Christ, or perhaps a creature of her own imagination, which she took for him, announced to her that she should die at six o'clock the next morning. The good woman passed the night in a state of painful conflict: in the morning, those that were about her stopped the clock, spoke with her on a variety of subjects, and thus the time passed over. She was afterwards easily convinced, that all she had seen were delusive appearances, and her fits also ceased.

Finally—a person that is holy and devout, by long exercising himself in walking in the divine presence, may fall into this state of magnetic sleep. But the case is very different then: it is immediately evident from what source his expressions flow; and yet even here it is necessary to be extremely cautious, and not regard every thing as a divine communication or revelation. Experience teaches, that persons far advanced in piety may fall into this state of natural magnetic sleep, and enter into connexion with good spirits and even angels; but even good spirits do not know every thing, particularly whilst they continue in Hades, and have merely learnt what they know from others. Vain and false spirits frequently interfere on these occasions, and seek to deceive and mislead the seer. These study his inclinations and wishes, and then arrange the communications, imagery, and ideas, in such a manner as to gratify his favorite inclinations. Now if he regards all this as a divine revelation, he will be satisfied that his wishes are agreeable to God, and thus he may fall into the most dangerous errors. The truth and importance of this observation cannot be too pressingly urged; for if a man, or even a child, fall into a trance, or any other state of supernatural elevation, and then begin to preach repentance, predict future things, and speaking in a style to which he is naturally incompetent, the common spectator, especially if he is religiously inclined, regards it all as divine influence and revelation: and the poor somnambulist himself believes it also, rejoices at it, is deeply affected by it, thanks God for it, and now the thought secretly arises in his mind, that he is something particular, and that God has some great object in view with him; he comes into connexion with false spirits of light, who strengthen him in such ideas by a variety of delusive imagery, and then the arch-enthusiast is completed. The entrance to this erroneous path has not been sufficiently guarded, the reason of which is, because philosophers and divines either do not understand how to guard it at all, or else not in a proper manner. Attend, my dear readers, as you value your eternal salvation, to the following infallible truths, which are of such importance in the present day:—

The whole organization of human nature, and both reason and holy writ, testify, loudly and incon-

testibly, that we mortals on this side the grave are referred solely to the visible world, and by no means to the world of spirits; he, therefore, who from curiosity seeks to learn either that which is concealed, or that which is future, commits a very heinous sin. Genuine faith and constant intercourse with God in Jesus Christ, unceasing watchfulness and prayer, and willingness to know nothing but Christ the crucified, places the human soul in rapport with God and Christ, through the medium of the Holy Spirit; and when we neither wish nor seek any thing else whatever, we are secure against every error and aberration: and should any thing supernatural manifest itself, we must continue calm, tranquil, and dispassionate, and examine minutely what the appearance is, and what is its object: but, in other respects, take no further notice of it: if it be of God, it will know how to legitimate itself, in such a manner as to make it impossible to be deceived; and if it be from the world of spirits, the Christian should know how to act on the occasion: I will lay down, in the sequel, the most proper rules of conduct for his government, in all cases of this kind.

I return to the object I had in view, which was the investigation of human nature, and its relation to the sensible world. There are a variety of diseases, which are ascribed to the nerves, and which act upon the etherial part, or luminous body of the human soul; and when such an individual possesses a lively imagination, incomprehensible things frequently occur. It often happens that such persons do not feel themselves ill; all the vital functions pursue their course unhindered and without pain; and yet these appearances result from a disordered organization of the body, and consequently form a disease.

These individuals see such appearances, either in a waking state, so that they are fully conscious of every object, and of themselves also, or else they are out of themselves, fall into a trance, and thus into magnetic somnambulism, in which state they see those appearances. But here arises the difficult question, where do those appearances cease, which are merely founded in the nature of man, and where do those commence which have their origin in the invisible world?

It is possible for a person in the state above mentioned to see angels and spirits; he may have intercourse even with God and Christ, and yet all this be a mere delusion of the imagination, for they are only images, which were previously formed in it, except that, by disease, they a.e become equally as lively, as those which we receive through the outward senses. I knew a pious female, who, in her trance, was surrounded with angels and conversed with them too. At length the angels began to sing, the pious soul sung with them, and what was it? A miserable ballad-singer, and a common national air. Persons in this diseased state often speak, with so much wisdom and understanding, upon subjects of which they were thought to possess scarcely the initial knowledge, that is really astonishing; and if they be pious and awakened people they often preach, and that better too, than many a right reverend divine. We have instances on record, of men having travelled about the country, preached repentance, and awakened many from a sleep of sin; and yet all this was the result of a nervous disorder, and of a natural elevation, produced by magnetic sleep.*

I willingly allow, that eternal love can make use, even of this means, to bring sinners to repentance; but it must not be regarded as any thing divine, nor as the inspiration of the Holy Ghost; for in this case, the greatest errors may result from it. It is to be lamented, that these extraordinary preachers, from want of sufficient self-knowledge themselves, believe that the Holy Spirit speaks through them; and when their hearers believe it likewise, however many erroneous things the preacher may say, they are all regarded as the word of God, and therefore as true. On such occasions, every thing should be minutely and rigidly examined by the Word of God and sound reason; but, in other respects, no value should be attached to these things, much less ought they to be declared divine; we ought rather to seek to cure such persons in a regular manner.

The highest species of apparitions, which have their foundation in human nature is, incontestibly, when a person still living can show himself in some distant place. However much this may have been ridiculed as the most absurd superstition, yet so certain and positive are the facts narrated, that the matter is placed beyond a doubt; and many of my readers will probably remember some incident or other of this kind. I do not speak here of such apparitions as have shewn themselves, immediately after death, to some particular friend, but of those that have made such a visit, whilst the individual still animated a living body. Instances are known to me, in which persons who were sick were seized with an indescribable longing to see a certain friend; they soon after fell into a swoon, and during the time, they appeared to the distant object of their longing. But the following narrative exceeds all I ever read or heard upon this subject; it comes from a credible source, and possesses all the characteristics of historic veracity.

About sixty or seventy years ago, a man of piety and integrity arrived in Germany from Philadelphia, in North America, to visit his poor old parents, and with his well-earned wealth to place them beyond the reach of care. He went out to America whilst he was still young, and had succeeded so far as to become overlooker of various mills on the Delaware river, in which situation he had honourably laid up a considerable sum. This respectable individual related to one of my friends, upon whose veracity I can depend, the following wonderful tale.

In the neighborhood of Philadelphia, not far from the mills above mentioned, there dwelt a solitary man in a lonely house. He was very benevolent, but extremely retired and reserved, and strange things were told of him, amongst which were his being able to tell things that were unknown to any one else. Now it happened, that the captain of a vessel belonging to Philadelphia was about to sail to Africa and Europe. He promised his wife that he would return again in a certain time, and also that he would write to her frequently. She waited long, but no letters arrived: the time appointed passed over, but her beloved husband did not return. She was now deeply distressed, and knew not where to look for counsel or consolation. At length, a friend advised her for once to go to the pious solitary, and tell him her griefs. The woman followed his advice, and went to him. After she had told him all her troubles, he desired her to wait awhile there, until he returned and brought her an answer. She sat down to wait, and the man opening a door, went into his closet. But the woman thinking he stayed a long time, rose up, went to the window in the door, lifted up the little curtain, and looking in, saw him lying on the couch or sofa like a corpse: she then immediately went back to her place. At length he came and told her that her husband was in Lon-

* Our author gives a remarkable example of this in his "Theobald, or the Enthusiasts," inserted in No. 1 of the "Instructive Narrations," page 131—recently published.

don, in a coffee-house which he named and that he would return very soon: he then told her also the reason why he had been unable to write. The woman went home pretty much at ease.

What the solitary had told her was minutely fulfilled, her husband returned, and the reasons of his delay and his not writing were just the same as the man had stated. The woman was now curious to know what would be the result, if she visited the friendly solitary in company with her husband. The visit was arranged, but when the captain saw the man, he was struck with amazement; he afterwards told his wife that he had seen this very man, on such a day, (it was the very day that the woman had been with him), in a coffee-house in London; and that he had told him that his wife was much distressed about him; and that he had then stated the reason why his return was delayed, and of his not writing, and that he would shortly come back, on which he lost sight of the man among the company.

This most singular narrative, which is totally inexplicable and incredible, according to the common system of materialism, can be explained only according to my theory of human nature, and its possibility demonstrated. For this purpose, I must refer to the indubitable facts, for which we are indebted to animal magnetism.

It is now an evident and established truth, that there is, in the human frame, a subtle luminous body, an ethereal covering of the immortal rational spirit, which has undeniably manifested itself in magnetism, galvanism, electricity, and in sympathy and antipathy, and shewn itself operative in a variety of ways: with this body the rational spirit is eternally and inseparably connected. In the foregoing pages, I have denominated this eternal luminous body, the human soul.

This human soul, by an artificial stroking or magnetizing, can be detached from the nervous system in a numberless variety of degrees, and become a free agent, according to the extent of the degree of detachment; certain diseases, and likewise certain medicines, or rather poisonous plants, are capable of producing the same effect.

In the inferior degrees of this detachment, consciousness remains, but the imagination is more lively, so that the man believes he really sees and hears what he merely imagines.

Natural sleep is also one species of detachment. When the organic machine of the body or rather the nerves, become wearied to a certain extent, the human soul forsakes these organs, in so far as they belong to the senses; for, from the latter alone proceeds our consciousness of the visible world; the soul, however, continues to act of itself; and if this take place in so lively a manner, as to make an impression on the inward organs of sense, we then remember it on awaking, and call it a dream.

This detachment is some degrees more complete in the common sleep-walkers, and has a similarity to magnetic somnambulism: in this case the human soul acts more freely, it dreams more connectedly and distinctly, and to such a degree, that the nervous system, and consequently the body also, is set in motion, although the senses are all at rest; and as the man in this state is not actuated by the sensible world, but by the connexion of ideas in the soul, actions ensue which do not belong to the natural order of things: but these very actions, as every one knows, are much more perfect in themselves, than when performed in a wakeful state; from whence it is again evident, that the human soul, when delivered from the bonds of the body, can act much more freely, perfectly, and actively; it then neither sleeps nor slumbers, nor is wearied any more for ever.

In the common fits of hypochondriacal and hysterical persons, as also of those who are afflicted with worms, the degrees of detachment are likewise very various, consequently the exhibitions and actions also which proceed from them; but at death it is complete. Of this I will treat at large in the chapter on apparitions.

It is, therefore, an incontestible experimental truth, that the human soul can be detached in an infinite number and variety of degrees, even to entire separation from the body, and is able to act freely of itself, according to the degree of this detachment.

There may be those to whom this detachment is a very easy matter, and assisted by secret means, may even be carried so far, that the human soul leaves the body for a short time, performs something at a distance, and returns to the body again: but this, however, must take place in a very short time, before the blood loses its fluidity. We have several instances of the occurrence of this in diseased persons. I will now explain, according to my theory, this rare and most remarkable phenomenon, with reference to the American instance above related, which is the most perfect of its kind.

When the soul is in a state of detachment from its sensitive organs, whilst still in the body, consciousness of the visible world ceases, so long as the detachment lasts; the soul, however, lives and acts in the sphere of its knowledge, and enters, at length, by frequent repetition of this state, into connexion with the world of spirits; it is no longer sensible of any thing in the visible world; it sees and hears no one except those with whom it is placed in rapport, which is accomplished by bringing the physical atmospheres of both into contact with each other, according to certain laws. With such persons the soul can have intercourse and converse, and from them it learns what is passing around it in the visible world at the time.

Now, supposing the American above-mentioned, possessed the capability, either from nature or by some secret means, or by both, to detach his soul at pleasure, entirely from the body, and unite it again with the body. he could therefore place himself in a state of the most perfect somnambulism; by the phenomena and experiments of which, every thing must now be explained. His soul, therefore, forsook its body, with the will to ask the captain of his protracted stay and of his not writing. As soon as it left the body, it was no longer sensible of any thing in the material world, and was in the world of spirits, where no space can separate. The moment, therefore, the soul forsook the body, it was already in London with the captain of the vessel: and if he had been in China, or any where else, its magic will would have carried it thither.

The human soul, abstractedly considered, is invisible, it is not obvious to the senses, but it can make itself visible in two ways: 1st, by attracting atmospheric substances, and forming out of them a body like its own; and 2dly, by placing itself in rapport with the person to whom it wishes to appear. In the former case, it may be seen by many persons; but then every one perceives that the apparition is no human being, but a spirit; in the latter case, it is only visible to him, with whom it stands in rapport, by acting in such a lively manner on his soul and organs of sense, that he sees the person before him as clearly, as if he were present in his own body. This remark I shall also subsequently elucidate, very clearly and completely, in the chapter on the apparition of spirits.

THE NERVOUS INFLUENCE.

EFFECTS OF THE NERVOUS INFLUENCE ON THE CHARACTER OF THE ANIMAL CREATION.

The part of our nature which is most especially the object of the present hypothesis, may be called the *animal* character of man, for it consists of all the natural passions, feelings, and inclinations, and of the faculties which operate chiefly by means of the nervous action. These, in a greater or less number, are also possessed by animals, to whom we cannot deny some of our feelings and faculties without opposing the evidence of our senses, nor refuse the possession of an immaterial principle, without incurring so far the charge of materialism. Their mental powers are certainly much fewer in number, and the highest faculties, such as the imagination, the reasoning faculty, and also the capability of forming abstract ideas, are in my belief, totally wanting, as well as the moral sense. But we must allow them the faculties of perception, memory, and even judgment, as far as it can be formed by personal experience; and indeed many brutes are more particular than their superiors in profiting by their own experience.

The influence of the nervous action on the character, is more plainly discernable in the animal, than in the human subject, because in their case it is not counteracted by the operations of the intellect.—This influence, however, is greatly moderated by domestication, for rational control changes the violence of the ardent temperament to a disposition at once generous and docile, and the sullen obstinacy of the phlegmatic temperament into a mild and patient tractability: a wise education has a similar influence on man, and when he is afterwards left to the control of his own reason, he finds his animal character as obedient as a generous courser to the direction of a steady and temperate master.

GENERAL CLASSIFICATION OF THE BRUTE CHARACTER.

In the animal creation, each temperament prevails through a whole species, excepting in the higher orders, as the horse and the dog. Generally speaking, birds are of the ardent temperament, fishes of the phlegmatic. and quadrupeds of both. Among the latter, I believe we shall find that the ardent temperament includes the whole feline tribe, the ape kind, the deer, the hare, the fox. The horse is of two distinct temperaments as well as man, shewn in the Arabian and Flanders breed, and it is to be remarked, that this animal bears a striking resemblance to him, in point of nervous constitution. The phlegmatic temperament includes the ass, the sheep kind, bovine tribe, the boar kind, the sloth, hippopotamus, rhinoceros, camel, etc., and I believe all amphibious animals. The elephant must be added, though endowed with a degree of acuteness that seems to entitle him to a place in the opposite constitution, but this results, I should suppose, from the possession of the highest degree of judgment that is compatible with the brute nature. In this I consider him as far superior to the ape, whose talent chiefly consists in the power of imitation.

GENERAL ADVANTAGES OF THE ARDENT TEMPERAMENT.

In the brute creation, the ardent temperament is distinguished by more beauty in the form, more generosity in the feelings and more acuteness in the senses and faculties, the brilliancy of the eye, the slenderness of the figure, and the grace and even elegance in the form and movements, with which their natural agility is frequently combined, places the finest animals in this class. With respect to men, many circumstances which I shall presently notice, serve to balance the advantages of the two temperaments.

EFFECTS OF THE NERVOUS INFLUENCE ON THE CHARACTER OF MAN.

It might be supposed that the natural character would be best exemplified in *uncivilized* man, for civilization diminishes the violence of the mental feelings, and often gives them an artificial direction; but I do not look upon a savage as a being in a natural state, but rather as one sunk *below* it, whose mind is clouded by error, which I apprehend is the invariable consequence of ignorance: the errors of the mind have the effect of perverting the natural feelings.—I therefore prefer examining the particular effects produced by the nervous influence upon the character of civilized man. It will only be necessary to describe the very marked characters which form the extremes in each class: the gradations may easily be supplied by the imagination.

CLASSIFICATION.

In enumerating the various combinations of the mental and physical qualifications with the two temperaments, I shall class them under the four following heads: 1st, the strong intellect combined with the ardent temperament; 2d, the same united to the phlegmatic temperament; 3d, the weak intellect combined with the ardent temperament; 4th, the same united to the phlegmatic. I shall name the talents, virtues and vices that seem to be the most usual attendants of each temperament, but it must be observed that I do not consider any quality of the heart as *necessarily* belonging to either: we may discover, by the general appearance of the feelings and faculties, to which temperament an individual belongs, but we cannot decide which qualities he actually possesses from a knowledge of his *temperament*, for if his disposition is good, he will have the virtues which most naturally belong to it: and if his disposition is bad, he will have its vices; with regard to the talents, however, we can draw more certain inferences.

ARDENT TEMPERAMENT.—GENERAL MENTAL AND PHYSICAL CHARACTERISTICS.

In marked characters this temperament is generally distinguished by darker hair and complexion than usually belong to the phlegmatic temperament. The shape of the head being dependent upon the degree of intelligence, and not on the temperament, we shall find that the developement of the pure intellectual faculties give an *oval form* by enlarging the upper part of the brain, while, on the contrary, the increased action of its inferior portion give a *round form* to the skull. But the former is more frequently met with in the ardent than in the phlegmatic temperament; and the lofty brow, combined with the dark and brilliant eye, and sensible and animated countenance, oftener give external indication of talent. United to the firm fibre, the form is generally undersized, compact, vigorous, and active. With a lax fibre it runs into heighth, but never into breadth. The best singers, musicians and dancers are found in this temperament, owing to the strength and perfection of the nervous organization. The senses are more acute and the susceptibility of pain is much stronger, in the ardent than in the phlegmatic temperament.

TALENT.

Before I mention the *mental* qualifications that belong to the temperament, I must define my notions respecting talent: when the mental powers are above the ordinary standard, we give the name of ta-

lent to this superiority: in examining the mental phenomena resulting from the difference of the temperaments, I have found that talent is of two kinds: the one has its source in the strength of the *pure intellect:* the other in the vigour and energy of its agent the *brain.* The first is general in its effects, and displays itself in every operation of the mind: the other shews itself more in some faculties than in others, and is considerably influenced by the peculiarities of the physical constitution.* The union of the two kinds of talent increases the perfection of each, owing to the assistence which one derives from the other. It is, in my apprehension, the combination of a strong intellectual power with a vigorous cerebral action that produces *genius.* Strength of intellect may be found in any constitution, but the talents that result from the activity of the nervous system must be sought in the ardent temperament.

MENTAL POWERS.

The energy of a well constituted brain gives quickness to the perception, liveliness to the imagination, and facility to the operations of the memory: it is therefore the ardent temperament that exhibits these powers in the greatest perfection.

With respect to the feelings, their distinguishing character is warmth and generosity, usually accompanied by irascibility of temper, which is greatly increased by every morbid affection of the nervous system.

THE ARDENT TEMPERAMENT COMBINED WITH A WEAK INTELLECT—INTELLECTUAL CHARACTERISTICS.

Deficiency of intellect, when combined with the ardent temperament, does not bear the appearance of stupidity, in which it differs totally from the same combination in the phlegmatic constitution. We must even beware of being deceived by the quickness and facility which the perfection of the nervous action gives to the performance of many mental operations, and remember that the test of a good understanding is in the *reasoning faculty.* Sound arguments alone can shew a sound intellect. The power of reasoning well may lie latent, from the want of knowledge, or be overpowered in certain cases by the inordinate action of the feelings: but where it is constitutionally deficient, its absence is observed at all times, for that which has no existence can never be developed.

DISADVANTAGES RESULTING FROM WEAKNESS OF INTELLECT AND STRENGTH OF FEELING.

The distinguishing characteristic of a weak intellect combined with an ardent temperament therefore, is a *natural* want of judgment; which is more injurious in its effects than the stupidity of the phlegmatic character: for in the latter case, the individual often acts with great propriety, by following established usages, and by profiting from experience to a certain degree. Of all mental constitutions that which unites *weakness* in the immaterial principle, and *strength* in the nervous action, is the least calculated for its own happiness, or that of others; for it is subject to the greatest excess and variety of painful sensations, both mental and bodily, with the fewest means of defence, that is, with the smallest share of firmness to control one, and of patience to allay the other. The mutability of the human feelings also, is particularly manifested in this character.—Steadiness depends more upon the regulating power of the immaterial principle, than upon the nature of the feelings themselves—if the impulse of the present moment is habitually obeyed without reference to a settled line of conduct, no dependence can be placed on the principle or affections: changeable in their direction as the waves of the watery element, without solidity, without a fixed foundation, the affections of a weak mind are at the mercy of every gale that blows: if the tide turns it flows perhaps as strongly in an opposite direction, and the bitterest hatred succeeds the tenderest love. In short instability is the characteristic of *mere* feeling. Maternal love alone forms an exception: *this* lies imperturbable in the hidden depths of the human heart, beyond the reach of the warring elements that disturb the surface: some instances may seem to contradict the general assertion, but the character is unnatural, and our subject of analization is the mind in its *natural* state. The strongest minds are not always exempt from mutability, for it is not the *positive* quantity of the intellectual power, that gives it preponderance in the mental government, but its proportion to the strength of the passions. We frequently find therefore that an individual of ardent temperament pursues his object with more eagerness but less perseverance than one of a phlegmatic temper, his opinions are more decided, but more subject to alteration, and his resolutions are more hastily formed and more readily abandoned. With respect to the deficiency of judgment so frequently observed in this constitution. it is hardly necessary to mention that a shallow intellect with strong feelings, is of all characters the most liable to the formation of erroneous opinions, for each defect is a distinct source of error. The errors which result from the weakness of the mind may be traced 1st, to an incapability of taking a general and extended view of things; 2d, to a liability to be deceived by external appearances; 3d, to a limited power of acquiring knowledge and of applying judiciously what *is* acquired. Those which are the consequences of immoderate activity in the sensitive department are to be traced: 1st, to hastiness of decision; 2d, to the formation of strong prejudices; 3d, to the habit of judging of the feelings of others by our own, Knowledge and experience are indispensable to an individual of this temper, so liable to err, so often blind to his own failings, and so exquisitely susceptible of suffering from their evil consequences.

MENTAL POWERS.

The mental qualifications that may be found in conjunction with a moderate intellect and a good nervous organization are, a quick perception and ready memory; and a higher degree of intellect may be accompanied by a lively imagination. From the rapid flow of ideas, result fertility of invention, humour and drollery: from the readiness of the memory, a facility in learning languages: and from the combination of a quick perception with muscular dexterity, result ingenuity, a power of imitation, and an aptitude for the acquisition of brilliant accomplishments.

THE FEELINGS.—GOOD QUALITIES.

The good feelings most frequently found in the ardent temperament, combined with a moderate or inferior intellect, are the following: warmth of the heart, frankness and openness of temper, unsuspiciousness, liberality and disinterestedness, charity, zeal and activity in the service of others, animal courage, an absence of selfishness, a hospitable and friendly nature, strong domestic affections, and frequently an agreeable liveliness of disposition.

* The *acuteness* of animals, which is distinct from the involuntary impulse we call *instinct,* is derived exclusively from this source; and the wonderful sagacity displayed by some brutes may be traced to the perfection of the cerebral action, which gives a certain degree of power, quickness, and correctness to their limited faculties.

EVIL QUALITIES.

Irascibility, impatience, petulance, inequality of temper, fretfulness, imperiousness, caprice, vanity, curiosity, indiscretion, loquacity, credulity, rashness, impetuosity, imprudence, extravagance, levity, irresolution, fickleness, jealousy, a morbid degree of sensibility, and violence of predilection and antipathy. In general the feeble mind displays more irritability of feeling than strength of passion, for great passions indicate a certain portion of energy in the mental power.

THE ARDENT TEMPERAMENT COMBINED WITH A STRONG INTELLECT.

It is in this class that we find the highest degree of *intellectual* perfection, for both the material and immaterial principle contribute to the production of the talents. A high degree of *moral* perfection, though not incompatible with this character, is far from being its natural attendant, because the sensations are as powerful in proportion, as the rational powers, and are therefore as difficult to control as the weaker passions of a weaker mind. Here we must seek for the great virtues and the great vices that belong to our nature.—All is upon a great scale: the passions are impetuous, and the will is determined whether it acts in opposition or in obedience to the sensations. To such a mind sound religious principle is indispensable—secure upon this foundation, it can remain firm and immoveable as a rock; the feelings and passions may assail it with the force and fury of the troubled waves, but they will be broken and dispersed by the shock: while the great intellect that yields to the temptations by which it is beset, presents the melancholy spectacle of a strong and beautiful vessel borne down by the raging billows, and finally overwhelmed in the deep abyss.

PHYSICAL CHARACTERISTICS.

The physical character is usually very strongly marked, for it receives additional expression from the energy of the mind. The external form may be more or less influenced; but the air, the manner, and the countenance are always illuminated by the intellectual fire that burns within. The complexion is most frequently pale, and the appearance either interesting or commanding.

THE FEELINGS.—PASSIONS.

The passions of anger, love, hatred, jealousy, and vindictiveness are, when felt, more violent and impetuous in this character than in the former. Wrath and vindictiveness, though more terrific in their effects, are more temporary in their duration, if the understanding be sound. Of all passions ambition, in some shape or other, is the most deeply rooted, and the most natural to this constitution of mind.

EVIL QUALITIES.

Irascibility, impatience, irritability, variableness, and violence of temper, want of prudence and moderation: in some cases eccentricity, fastidiousness, discontent, ardour of pursuit, followed by weariness and disgust.

GOOD QUALITIES.

Magnanimity, generosity, courage, and intrepidity, candour, liberality, sensibility, true dignity, elevation, refinement, and delicacy of sentiment, determined resolution, heroic self-devotion, a high sense of honour and spirit of independence, noble enthusiasm, love of glory, ambition of excellence, charity, and piety, pure and ardent, and exempt from superstition and bigotry.

INTELLECTUAL CHARACTERISTICS.

Strength of intellect combined with vigour in the cerebral action, gives the quickest perception, the strongest memory, and the highest power of the imagination. From the rapid flow of ideas compared, combined, and analysed by the mind with quickness and extraordinary facility, result wit, originality, and readiness of invention; keenness of observation, and a restless spirit of investigation usually attend it. To this class belong the greatest poets, wits, and orators; some of the most valiant heroes and mighty conquerors, and many of those whose crimes and splendid actions fill the pages of history: in short all the extremes of the human character are found in this temperament. As the power of judging correctly does not only depend upon the strength of the understanding, but also on the capability of taking a cool and dispassionate view of things, the greatest mental powers when united to the ardent temperament are often insufficient to secure the judgment from failure in points that deeply interest the feelings. Strong minds are therefore liable to error and prejudice when their sensations are equally strong; but their prejudices, unlike those of weaker intellects, are *removeable*: for when the feelings are hushed, the reason resumes her empire. A change of opinions in this case does not therefore shew the fickleness of a volatile temper, but the candour of an enlarged understanding; while the tenacity of weak minds is a mark, not of firmness, but of obstinacy.

FORMATION OF OPINIONS IN THE TWO TEMPERAMENTS.

With respect to opinions, the ardent temperament in combination with every degree of mental power is apt to run into extremes: thus the weak mind is given to bigotry and superstition, while the strong intellect, though susceptible of the most exalted sentiments of piety, sometimes displays the coldest scepticism. This difference in the effect is partly attributable to the natural timidity of a weak mind, and the natural fearlessness of a strong one; the martyr and infidel must both possess mental courage; the trembling bigot yields to feeling, without venturing to consult the reason. The scepticism of a *phlegmatic* temper often arises from indifference, which prevents all examination of a subject, or from pride, which will not allow us to believe what we do not comprehend. The doubts of the opposite temper frequently spring from a morbid fear of being deceived, and these are more easily dispelled, because they are attended by a spirit of investigation.

SPECULATIONS OF PHILOSOPHERS.

It seems strange that the noblest powers of the mind should give birth to the most extravagant notions, and yet it is the kind of intellect now described that produces the wildest hypotheses, and most irrational systems. This is also attributable to the want of moderation that naturally drives a brilliant intellect to the extreme point in every theory. Indeed, the energy of the nervous action sometimes gives such a force to the imaginative faculty that it entirely overrules the judgment, and in such constitutions a morbid state of the brain not unfrequently brings on insanity.

PHLEGMATIC TEMPERAMENT—GENERAL MENTAL AND PHYSICAL CHARACTERISTICS.—MENTAL POWERS.

The distinguishing characteristic of the temperaments, considered independently of the influence of the pure intellect is, talent in the ardent, and dullness in the phlegmatic temperament. Whatever share of talent is possessed by the latter must be derived entirely from the active powers of the intellect;

for it obtains little or no assistance from *nervous energy*. A deficiency of intellect in the phlegmatic temperament must therefore produce absolute stupidity. The first gradation above stupidity displays a plain, straight forward understanding, entirely destitute of imagination: this forms the class of the *ennuyants*. The next degree shews good sense, with a quicker perception, and a more lively imagination; but still the operations of the intellect are slow, and performed with difficulty, owing to the sluggishness of the brain, and the weakness of the memory. As we advance, the feebleness of the mechanical action is compensated by the increase of the intellectual power: its highest degree of perfection shews a clear understanding, a sound judgment, an acute discernment, strong powers of reasoning, and a mind vast and comprehensive, noble and elevated. Here the habit of methodizing and analyzing assists the memory; the systematic arrangement of the ideas aids the reasoning faculty; the absence of passion gives correctness to the judgment; and the coolness and deliberation with which all the mental operations are performed give clearness to the discernment. Nevertheless the brilliancy of talent displayed in the ardent temperament cannot be attained in the phlegmatic; for, supposing the powers of the intellect to be equal, the latter must always lack the fire and energy which give force and rapidity to the operations of the former.

FEELINGS.

As the two temperaments are characterized by *quickness* in the one and *dulness* in the other, in the department of the talents, so they are distinguished by *warmth* and *coldness* in the department of the feelings. This only refers to the animal character; the operation of the intellect restrains the one, and rouses the other. In the phlegmatic character the sensations are more under the control and direction of the intelligent power, and the conduct is more easily regulated than in the ardent temperament; consequently the most *faultless* characters generally belong to this class. Nevertheless I consider the balance of moral evil as laying on this side; for though the errors are fewer, they are more excusable, not only because the faults do not admit of such palliation from the natural violence of the sensations, but also because they are derived from a worse origin, viz *selfishness*; and from this foul source proceed the most evil feelings of which our nature is susceptible. Let us examine in what manner it forms part of the animal character of man, how far it is innate, and why it is more usually the attendant of the phlegmatic than of the ardent temperament.

ELECTRO MAGNETISM.

ATTRACTION AND REPULSION.

BY P. CUNNINGHAM, ESQ.

REFLECTION AND REFRACTION.

It may be inferred that the particles of nitrogen and oxygen constituting the atmosphere have, like other bodies, electricity or magnetism occupying their upper or their lower poles, according to the hemisphere in which they are situated. Thus in the northern or electric hemisphere, magnetism will occupy their lower poles and electricity their upper, while in the southern or magnetic hemisphere the reverse will be the case: an atomic polarity which the attractions and repulsions of the above hemispheres must necessarily tend to sustain through every varying atmospheric change. Supposing the atmosphere at rest, the particles thereof would, by the position of their attractive and repulsive poles, become united to each other in a longitudinal line, extending like radii from the earth toward the heavens, with the magnetic pole of one particle in attraction with the electric pole of the other; and by the circumference of the circle described by them toward the heavens being the *largest*, the atmosphere would thus be progressively diminished in density as this *outer* circle was approached. The progressive diminution of atmospheric density as we recede from the earth, as well as the phenomena of atmospheric refraction, favour this view of atmospheric arrangement, the rays of light and heat radiated at an angle from the sun to the earth being bent *inwards* towards the perpendicular, while those radiated from the earth toward the heavens are bent *outwards* from the perpendicular, a course that naturally would be given them on coming in contact with any of these atmospheric lines, to be deflected thereby and pass between two of them *to* or *from* the earth. There is nothing in this view militating against the passage of these rays in a tranverse direction between the atmospheric lines, or even between the particles composing them, which they evidently do: the above view only applying to those radiating particles of heat and light striking against the atmospheric particles instead of passing between, and being thereby deflected along the lines which they form.

The only visible difference between reflection and refraction is, that the former is applied to the effect produced upon the rays of light and heat by the particles of bodies which they *cannot* pass between, and the latter to the same effect produced by the particles of bodies which they *can* pass between; the angles of both reflection and refraction being the same, and the cause of both the same also, viz. the coming in contact with a substance they cannot penetrate, and which consequently alters their course. The usual zig-zag course of lightning in the atmosphere, when attracted by bodies, while showing its affinity to light and heat by its angular refractions, illustrates also in a visible way the refractions of the above bodies, when meeting with other bodies sufficiently powerful to obstruct their course toward the body which attracts them.

The lesser refrangibility of the sun's electric rays than of his magnetic may be owing to the greater *velocity* of the former, caused by the greater repulsion from the sun, or their greater attraction by the bodies toward which they were moving; by which greater velocity they would *more* readily force their way through the atmospheric lines, and be thus *less* readily refracted. This greater velocity from solar repulsion may be easily supposed to exist from the sun evidently containing more electric than magnetic matter, as evinced by his rays uniformly exciting the sensation of heat; while the velocity from attraction by other bodies may be accounted for by all bodies within his sphere containing *less* electric matter than him, and therefore having a greater attraction for this than for his magnetic matter.

MUSIC AND SOUND.

Notes of music seem but mere undulations of sound, so modulated as by the harmonious variety of their changes to keep the animal body in a constant state of pleasing agitation,—now kindling up into a wild delirium of joy, now melted into tears, and now plunged into the abyss of melancholy, according as the exciting or depressing tones predominate That these feelings are produced by the electro-magnetism in the atmospheric undulations seems consonant to reason, from the similar sudden excitements and depressions which electric sparks

produce in the animal body; though by their suddenness, greater intenseness, and want of variety, are necessarily of a disagreable rather than of a pleasing nature.

In excursions indeed to the top of mount Etna, sounds have been heard sometimes meltingly musical, and sometimes hoarse and discordant, doubtless caused by the electro-magnetic currents issuing through the volcanic crevices of the mountain.

People of nervous temperaments, and consequently most excited by electric impressions, are also most excited by music; while those most subject to an overflow of spirits, are also most subject to the greater depressions thereof; as an inanimate substance which receives atomo-electricity quickly, in haste parts with it. Sound varies in its influence upon the feelings, according to the varying magnitude of the atmospheric oscillations, and therefore according to that of the bodies causing these: the musical notes of small strings or small flutes, being as lively and exciting as those from large are mournful and depressing, while the sound of small streams and the notes of small birds afford a similar contrast with those that are large.

The larger indeed the animal, the more discordant in general the voice, with the exception of that of a man, which by a system of judicious training he has been enabled to modulate to every musical cadence.

By analogy with the motion of fluid and gaseous bodies (such as exhibited by the moving water from a pipe, or the moving smoke from a gun barrel,) I would infer that sounds are produced by rotatory oscillations in the air; these oscillations being in all likelihood spiral from wind instruments and axillary from stringed, at least such would be the species of atmospheric motion most likely to be excited by the above different oscillations.

The denser the air, the more powerfully are these oscillations excited; and the stiller it is, the greater the distance to which they are excited throughout it. In the dense moist atmosphere preceding rain, and in that toward the poles, sounds of all kinds are powerfully conducted; while along the beds of woody banked streams, they are sometimes heard echoing throughout their various windings, for miles, in calm evenings, with all the pleasing modulations of a flute.

Similar feelings to the above are experienced by the viewing of large or small objects: the contemplation of vast prospects, however harmonious the groupings, exciting at first glance a sensation of awe, while that of similarly constituted small ones excite sensations of a pleasing exhilarating nature, varying as the prospect varies over which the eye roams.

REVOLUTIONS IN THE EARTH.

The changes effected in the structure of the earth since its formation may, I conceive, be all accounted for by causes operating within itself, without reference to extraordinary external agency. It seems indirectly borne out, by phenomena yearly demonstrated, that the external crust of the earth only is solid, and that the internal part is filled with fluid or gaseous bodies; for how otherwise could even modern earthquakes so easily effect such wonderful change in its surface, heaving up its solid parts at one place from the bottom of the ocean into goodly islands, and at another depressing the dry land beneath the surface thereof? or sinking it down in interior regions, until deep and extensive lakes occupied its former site, while causing the whole superfices influenced by the shocks to quiver and undulate like the waves of the sea.

Such proofs are still frequently witnessed in both hemispheres; but the western coast of South America exhibits on the grandest scale what has been effected in this way during no very distant periods. From Conception (Chili) in 37 South latitude, to Tumbez (Peru) in 3 South latitude, a distance of 2000 miles, the coast for an average of 70 miles interiorly, bears incontestible marks of an elevation comparatively recent, many of these elevations contiguous to the sea having even been effected since the Spanish conquest. The clay soil has the appearance of that burnt in England for manure, and in some of the dry narrow ravines emits an odour like new burnt bricks, while beds of shells are found at intervals of the identical varieties at present existing in the neighboring ocean, in too vast quantities and at too great a height to admit their deposition there by any other cause except sudden elevation along with the bed of the sea. Where they are imbedded in clay or sand they are semi-calcined, frequently crumbling between the fingers like slaked lime; while imbedded in the stony strata, they are more or less vitrified and united firmly with the rock; the solid nature of the latter enabling it to conduct the subterraneous heat more powerfully than the sand or clay, and therefore vitrify the shells with which it was intermingled.

The geological strata in the different hemispheres which I have partially examined, have all indicated by compass a medium N. N. E. and S. S. W. bearing; and in this line nearly I find all the earthquakes of both North and South America to have passed whose routes I have been enabled to trace; the two latest in Peru coming from the South, showing their causes to have been generated near the South Pole. Deeming their causes to be electro-magnetism, I conceive the latter to have been produced at the South Pole, as before exemplified, by the condensation of the fluid waters into solid ice; by which condensation the atomo-gaseous-electro-magnetism, if I may so term it, was converted also into fluid electro-magnetism.

That electro-magnetism is the cause of earthquakes, seems evident from the rapidity of their motion; from the countries in which they are common being composed of bad conducting materials, by which greater violence is produced in their passage; by their being most liable to occur after rain, when the conducting properties of the soil are somewhat improved; and by their resolving of the silver ores into pure metal, known by what is called, "the growing of a mine."

The greater mass, and consequently greater attraction, of the electro-magnetic girdle at the equator, will necessarily tend to draw the under electro-magnetism currents evolved at the poles toward the equatorial neutral line, assisted in this by the earth's rotation directing them upwards towards the earth's centre, while checked in their attempts to force a passage through the latter's superfices by the pressure of the electro-magnetic zone and atmosphere surrounding it.

These currents, when not in sufficient intensity therefore to burst out in shape of new volcanoes, would gain vent partly through the craters of old ones, but chiefly through the equatorial neutral line, out of which they would be whirled in successive streams by the earth's centrifugal force, if not previously forced to commingle with the electro-magnetic hemisphere to supply any loss of volume it might have sustained.

In the calm equatorial latitudes between the trade-winds, where the hemispheric neutral line must necessarily exist, electro-magnetic flashes and electric squalls and showers are almost incessant; corroborating in some respects the idea of the electro-

magnetic under-currents obtaining a passage here; while the idea of the pressure of the electro-magnetic zone and atmosphere enveloping the earth, preventing the egress of these currents from the latter's superfices, seems also borne out by the fact of volcanoes almost uniformly bursting forth from the highest and most peaked mountains, where the resistance opposed by the bodies must consequently be the least.

The idea of the earth's rotation throwing out the electro-magnetism by centrifugal force, is also similarly exemplified in the sparks elicited by the whirling of electro-magnetised bodies in the class room; an experiment demonstrating the *true* cause of the severe bodily injuries so often inflicted by what is called "wind of shot."

The motions of the electro-magnetic under-currents from the pole to the equator, heaving and cracking (even at the present day when sufficiently powerful) the earth in a northerly and southerly direction, give an idea how the geological strata were first formed. At early periods, when by evident proofs the earth was in a state of fusion, the first solidification would naturally take place around the poles, on account of the cooling process going on most rapidly there. This solidification would naturally operate in the same way as we see the solidification of water operate at the present day, by converting a portion of the atomo-electro-magnetism into mass, to be radiated upwards in the shape of aurora borealis, or directed in an under-current towards the equator.

As the cooling process proceeded, and the earth thus progressed toward a state of solidification, the action of the above under-currents, the earth's rotation, and the influence of the sun and moon, would all tend to give, by their joint efforts, a north and south bearing to the first strata in a semi-fluid state, which, solidifying by exposure, would serve as a nucleus for the other strata to incline against. The future electro-magnetic currents would be naturally attracted towards this more solid matter in their course, from containing more matter in less bulk than the fluid matter, as winds are attracted by contiguous shores, following often all the windings of their course; so, in the same way, each successive electro-magnetic current would follow all the windings of the coast of the first solid stratum, making successive additions thereto.

A westerly tendency would naturally be given to the various strata by the action of the sun and moon, by which those emerging on the eastern side of an older stratum would be inclined by a gentle slope against it; while those emerging on the western side would be either thrown up almost perpendicular, or projected into the sea, to be carried off in its current. The gentle sloping of eastern strata and of eastern shores, compared with the abrupt precipitousness of both strata and shores on the western coasts of countries, tend to strengthen the above view, which acquires a farther confirmation by the generally greater amount of land on the eastern than the western sides of the great dividing ranges of countries, more particularly South America, Britain, and Ireland, that have only one great dividing ridge.

As the cooling of the earth proceeded, its matter, thus becoming less and less fluid, would consequently be less and less capable of being projected to the height of the first strata: thus producing a diminution in altitude of the various strata which succeeded, and consequently of the mountains which they might form How the various strata should differ so materially from each other in their appearance, as well as in their chemical constituents, seems referable to the quicker or slower solidification of their matter. Granite, the oldest rock, is constituted of flint (the oxide of the metal silicium), found by Sir Humphry Davy to be the most difficult to deprive of its oxygen of all the metallic earths, and consequently the one having the greatest affinity for it. There being very evident proofs at the present day of the reduction of the metallic earth to pure metal in the earlier periods of the globe, consequently, the metallic silicium having the strongest affinity for oxygen, would, on the cooling of the matter of the globe, be among the first to become solidified by oxygenous absorbation, thereby causing it to be the principal constituent of the *first* formed strata.

The petrifaction of shells, wood, and animal fibre in many of the later strata of the globe, shows clearly the earths have been, partially at least, reduced to the metallic state during even late periods of the world's history. The shells being upon the surface would be less liable to reduction than the deeper-seated earths, like the silex; so that the latter in flowing outwards, by reason of its known great lightness, would in its hot fluid state come in contact with the oxide of calcium composing the shell, and by its greater affinity for oxygen seize that of the calcium, and becoming thus solidified assume the form of the shell, while the calcium flowed off in a liquid metallic state. Wood and animal matter also containing oxygen in their composition, this would be similarly attracted by the hot fluid silicium, and their other gaseous products dissipated thereby.

The above is indeed a process analagous to that exhibited at the present day in some of the copper-mines; where, by placing a bar of iron in the mine water, containing a solution of sulphate of copper, the iron gradually disappears, and a copper bar of similar form occupies its place,—there being only this difference between the two operations, that the *solid* here attracts the oxygen from the *fluid*. Gold also, a metal having a less affinity for oxygen than any of the others, is found principally among the earliest granite strata, and that in a pure metallic state; its weak affinity for oxygen admitting the latter to be easily abstracted from it: thus explaining why it abounds so in the primitive strata; because these solidifying first, on account of their greater affinity for oxygen, would naturally abstract this oxygen from bodies like the oxide of gold, that most easily parted with it.

The effects of the earth's centrifugal force (by reason of its axillary rotation) upon the elevation of the earth's strata, and of the greater intensity of electro-magnetic action in the early eras than now, are exemplified in the highest mountains being situated near the equator, where the earth's rotation, and consequently centrifugal force. is the greatest, and in the earliest strata having the greatest amount of active or extinct volcanoes in them, as well as exhibiting proofs of a greater state of liquefaction by the regularly-crystallized forms which they present.

The progressive extinction of volcanoes over the earth's surface, as well as the progressive imperfection of crystalline arrangement in the strata, according as we descend from older to later eras, pourtray the above progressive diminution of electro-magnetic energy in the earth; the late strata exhibiting in their constitution fragments of nearly all the earlier strata, agglutinated imperfectly together, in the same state of medley arrangement that we find in volcanic tufæ in the late strata of Peru: nodules of granite, quartz, iron-stone, and slate being all mingled in one chaotic mass together.

Are we to ascribe the lesser electro-magnetic intensity of late eras to a diminution of mass-electro-magnetism in the earth; or to such a change in the

solid crust thereof, as to make it a better conductor, and thereby enable the former to be more equalized as well as more easily transmitted throughout it? I conceive the latter to be most probable; otherwise the earth must have in earlier periods been farther from the sun than now, while the progressive addition to the solid parts thereof, since the solidification of the first strata, as well as the progressive amelioration of its soil, for the purposes of vegetable life, imply an easier transmission, and consequently a more general equilibrium of the mass-electro-magnetism throughout it.

We have a singular instance of the improvement of soils, by the sun's atomo-electro-magnetic rays, on turning the former up, and exposing them freely to the latter's salutary influence; and by inference, therefore, may we not conclude that the electro-magnetic currents beneath the earth's surface have long been exerting a similar salutary influence in ameliorating the soils there?

If such be the case, the now sterile unirrigated soil of Lower Peru may eventually become as fertile as it is now sterile, by the electro-magnetic currents gradually making it a better and better electro-magnetic conductor, and consequently a better rain attractor, by which it may be hereafter enabled to furnish food for the maintainance of a population as dense as that of older formed countries.

At the period of a semi-fluid stratum being suddenly raised from under the waters, the water elevated therewith would naturally in its backward descent evacuate hollow courses therein, to be afterwards still further enlarged by the continued action of the rains and winds; the *first* washing and the *second* blowing the loose particles of earth away, when in the latter case dried into dust. In Lower Peru, where rain rarely falls, the wind has been the main modifier of hills and valleys since their projection from the deep; and, judging by appearances, its potency in this way seems no way inferior to that of rain, the hills having sharp ridges, and as sloping outlines, and the valleys being as deep as the generality of those of rainy countries. No one who has travelled in Lower Peru, in windy weather, can indeed for a moment doubt the capability of the wind in effecting the above changes, when contemplating the blinding clouds of dust and sand that every where encounter him, hurled along the plains in showers, and whirled in eddies from the hills into the adjoining ravines, to be eventually blown out at the ends thereof, by the strong gusts rushing at intervals through them.

The land around Bahia (Brazil), presents a fine illustration of the mode by which rain torrents lengthen and widen valleys, and thereby shape out the form of the adjacent hills, the country (a table land of red clay) being moulded thereby into narrow tortuous ridges, with equally narrow and tortuous as well as deep valleys between, all communicating by gradually widening mouths with the sea. At the head of each valley the torrents in the rainy season open a myriad of small water-courses down the face of the declivity, which by successive enlargements gradually merge into each other, and thus continue onward the valley, fresh courses being always formed as the old ones disappear, while the main valleys progress into the country, smaller ones branching out from them to the right and left excavated by a similar process, drain the land out of their reach. None of these main valleys ever communicate with each other, though often approximating very close, ramifying through the interior of the country like an artery through the animal body, for equally beneficial purposes.

The influence of streams upon the modification of land in their vicinity, can, in a literal sense, be only applied to the actual extent of the beds in which their waters run. Where their fall is considerable, and their beds constituted of earthy matter or easily decomposed rocks, they will naturally *deepen* these beds; but where there is little fall, and their stream is consequently sluggish, they will be more disposed to *elevate* them, by the deposition therein of the alluvial washings from the higher grounds above, while the beds of those composed of more difficultly decomposible rocks, are so speedily covered with slimy mosses, as to counteract in a great measure the action of the most rapid torrents upon them.

The remains of tropical vegetation found in many of the European strata, show that the earth either approximated nearer to the sun, or contained more inherent heat formerly, than now, or that its poles have been changed since the existence of the above plants. The first could only have been the case in consequence of the earth containing less mass-electro-magnetism *then*, than *now*,—the second we can readily suppose from the marks of intense ignition which it exhibits; and as the cooling process would be naturally slow, the above tropical plants might have been produced when it contained a sufficiency of internal hot-bed heat to force them forward, while the *third* could only have been brought about by some comet suddenly approximating it.

If the general bearing of all the strata throughout the world is found to be much to the eastward or westward of north, a change of pole may be surmised; but should antediluvian tropical productions be found in the respective antipodean strata corresponding to this change, and more polar productions in those of the tropical latitudes, we may infer such a change to have occurred. Thus we find numerous remains of similar tropical plants (such as gigantic reeds and palms,) in the London clay and coal fields of England, and in the coal fields of her nearly southern antipodes New South Wales; but a more extensive comparison of the vegetable remains of the various latitudes of the earth must take place, before any just conclusion can be drawn. Should a change of pole be proved by the above means, this change was most likely effected by the moon in first approximating the earth as a planet.

On contemplating the various geological strata of our globe, we find that it has been subjected, since its first formation, to numerous overwhelming deluges and volcanic derangements, all increasing the extent of the habitable part thereof, destroying at the same time, and burying the whole of the living creatures occupying the sea and the land at each successive disaster, that a new and more perfect race might supply their place.

We see in each successive series of new animals the progressive aim of the Deity onward perfection, advancing from the most inanimate shell-fish of the early eras, to the more noble mammalia of the later, and thence to the last and greatest era, in which the noblest of all—man, was created. Seeing thus that our earth has undergone so many great changes, are we to conclude that the workings of the Almighty mind towards perfection, as regards us are finite? as the sacred writings warrant us in believing; or that we are to experience a similar annihilation, and a nobler race of beings created in our place,—burying, as it were, in a second Herculaneum all the magnificent structures in literature, science, and art, of which we now so proudly boast, leaving the succeeding new creation to work up hill, and in the dark, as we have done, until a similar magnificent fabric has been created, only to be subjected to the same inevitable catastrophe?

THE

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For the Magnet.

NEUROLOGY.

Mr. Editor:

Dr. Buchanan, from Kentucky, whose opinions and experiments, as published in the papers, have made him somewhat distinguished in the west, as you know, commenced a course of six lectures in this city, the first of the present month. The following was his programme:

1. Upon the principles of Neurology, and the history of the science.
2. Upon the human Neuaura, or nervous fluid, and its transmission from one person to another.
3. Upon the Electricity, Galvanism and Magnetism of the human frame, and other subtle imponderable agents not yet known to naturalists.
4. Upon the excitability of the human brain by Neuauric influence, and the application of this discovery to the cure of diseases and the improvement of education.
5. Upon the principles of the Neuauric operations, the relief of local pain, and the art of curing headache by Neuauric influence.
6. Upon the revolution in Phrenology or Moral Philosophy produced by Neuauric experiments.

These Lectures will be accompanied, if practicable, by *illustrative experiments* upon such gentlemen among the audience as are capable of feeling the Neuauric influence, and describing their sensations.

I heard every lecture; you were there also. *I was disappointed.* The promised experiments were not performed; and, without the facts on subjects of this kind, I understand nothing. I was not instructed, nor convinced. My own ignorance or stupidity, however, may have prevented my full conversion to the Doctor's theory. You are devoted to such matters, and I therefore make bold to ask your attention to a few suggestions, which I hope you will accompany with the necessary remarks in the pages of the Magnet.

"*Neurology*"—what's in a name? The Doctor claims to have discovered a *new agent*, the *Neuaura* —from *νευρον and αυρα*—a subtle imponderable fluid, secreted in and emanating from the brain, and pervading the nervous system; being, as it were, the atmosphere, the vital air, of the nerves. This is the foundation of a *new* science, which he calls "*Neurology.*" Is not this name liable to objection? One hundred years ago it was applied to another doctrine quite different, held by a large class of scientific men then known as *Neurologists;* it seems to mean the *science of the nerves,* while it is really the science of this mysterious fluid alone, — and its phenomena, as detailed by Dr. Buchanan, are so exceedingly like mesmeric phenomena, as clearly to belong to the same general class, if they are not the same. And, of all the names now too many for that kind of knowledge, I prefer mesmerism. Animal magnetisn, human magnetism, somnambulism, somnipathy, somniscience, sleepwalking, and neurology, are all objectionable, because they either presume the subject to be fully understood, which it is not, and to take its name from its nature, or they take the name from a single class of phenomena and apply it to the whole subject, which has a great tendency to mislead inquirers, and to give occasion to fallacious objections.

Now I know of no experiments of Dr. B. showing that his neuaura is any more a fluid of the nerves, than it is of the blood. It might as well be called aimataura as neuaura. These phenomena are eminently life—"The life of all flesh is the blood thereof." It seems to be admitted, that there is an extraordinary influence in human physiology, which is magnetic.—There is more iron in the blood than in the nerves;—wherever there is a nerve there is a blood-vessel. There is a continual oxydation going on in the system, which might well make the blood electro-magnetic.—There are two currents of the blood running through the system, and where they approach each other, as it were between them hangs the pendulous heart, "the seat of life." Who knows that its mysterious swinging is not caused by this magnetic influence, in perpetual circulation? I do not say that it is so. So many—the most striking, of these phenomena, are only manifestations of muscular action,—sometimes involuntary, unconscious muscular action,—who can say that this fluid, if such it be, has not its home in the muscles, affecting them as it were independently of the brain, which seems to take no notice of these movements? Now, is it not true, that it would be better to take the name mesmerism, signifying *nothing*, till the facts are known, and the principles ascertained? till we at least know whether there be, as Dr. B. asserts, *five* separate fluids pervading the system, each of strange qualities and powers, and each sufficient for any of these things, surely sufficient for all known facts— the neuauric fluid, the muscular fluid, the magnetic fluid, the galvanic fluid, the electric fluid, "and other subtle and imponderable agents not yet known to naturalists," or whether they are all one? Is not Dr. B. the only man who *knows* that magnetism, galvanism, and electricity are totally and widely different fluids? Is not this a signal illustration of the weakness of Dr. B. in philosophy, no less than in logic? multiplying causes for like effects, generalizing from a single instance, distinguishing when there is no difference,—which was apparent in his lectures.

If we must have a significant name, I know of none under which all the facts can be classed, unless it be *sympathology.* The whole subject is no more

nor less than that of human sympathy—sympathy of the body and the soul. What is the mode or the agent of its transmission, or the quality and functions of its harmonizing power, is still unknown. It will be time to theorise when careful observers shall have made a record of all its marvellous facts, from the infant's first smile in the face of its smiling mother, to the mutual influence of lovers, the mastery of popular speakers and leaders, and the greater mysteries of clairvoyance and phreno-magnetism.

The History of the Science.—Dr. B. discovered it a year or two since, by means so evident, and its operation and truth were so clear and simple, that he wonders it had not been suggested to every body. He discovered it by reflecting on the great difficulties which environed the received theories of the brain and nerves, and by passing galvanic currents through the brain. Its known history "hath this extent, no more."

Now, what I mainly ask of you, Mr. Editor, is to explain all this clearness and simplicity, and perfect apparentness, of which Dr. B. speaks, but does not illustrate, and which every one else has overlooked. His significant expression was, that he had discovered "a royal road" to the knowledge of man, physically, morally, and intellectually, "in one month, by the simplest means imaginable, the physiology of the brain and the sublime science of the mind are learned, and an hour's observation made the substitute for heavy folios of reasoning." This is, indeed, a royal road to science—the first that was ever opened!—Careful and wide observation, well-considered induction, lives of labor and thought, these are the old-fashioned ways to natural science.——Why was not a sign put up at the crossing, "when the trumpet sounds look out for the loco-motive!" No wonder that when Dr. B. came dashing along, blowing his trumpet, the plodders in the old ways on the slow turnpikes of investigation, the Galls and Spurzheims, the Bells, Broussais, and Vimonts, loaded down with a lifetime of facts, should have been turned topsy-turvy, their facts all spilled, and the *disjecta membra* of their systems scattered by the wayside—as has been done on this "one hour's observation" system.

The Royal Road.—A kind Providence has scattered through the community, for the express purpose of teaching us neurology, one person in a thousand, peculiarly susceptible to neuauric influence.—They are in this respect differently constituted from their fellow citizens, and it is by experimenting upon these "one in a thousand," that we learn the nature of those other nine hundred and ninety-nine who are not like them, learning the generic character from the idiosyncrasy—the rule from the exception. It is believed, that on "royal roads" alone, do we arrive at such conclusions. If only one lion in a thousand ate flesh, we should hardly infer from it that he had been sent to teach us that the lion is a carnivorous animal.

It is, also, worthy of remark, that the statistics of lunacy show that about "one in a thousand" of the human race are lunatics. This is a striking coincidence: of course, we are all crazy, and lunacy is the normal state of man. What a noble seminary is bedlam!

The Neuauric Influence.—The neuaura, says Dr. Buchanan, passes from one person to another by contact—sometimes without contact. It is stimulant, and the organs of the brain are thereby excited, and their proper functions revealed. This fluid takes the shortest course to the brain, no matter what may intervene. He thus destroys the neuauric equilibrium in any part of the body, exaggerating or diminishing the usual and natural function.

By practising upon these impressible subjects, Dr. B. gets his facts, and he uses one subject as a touchstone to find another. And thus he has discovered, that phrenology, physiology, and moral philosophy, are destined to a great revolution. Gall was a discoverer, according to Dr. B., but his system is imperfect, and in many points false. Dr. Gall's small number of faculties was always a stumbling-block to Dr. B.: they were so few—only thirty-four faculties, for the various operations of the human mind. Is it not true that Dr. Gall had about three times as many as the metaphysicians who had preceded him?—Another fault of Gall—he *mapped* the skull out into actually defined sections, as locations of the organs. The neuaura shows that the organs are infinite in number, and no one knoweth their place except by neuauric influence. They are located differently in different persons. All the organs are subdivided till *every fibre is an organ*, with its separate proper function; each feeling, act, and emotion of the mind has its organ; each physical function has its organ—all in the brain. Thus, the organ of thirst is subdivided into an organ for the love of cold water, another for hard cider, another for toddy, and so on (see Dr. B.'s pamphlet, page 60). So of language—an organ for Greek, another for Latin, another for Choctaw, &c. in every human head. Causality, I suppose, contains organs for all sorts of causes, from the great first cause down to the causes of the late Whig defeats. An organ for sleeping, and another for waking; another for dreaming; so an organ for walking, for running, for dancing—of course an organ for right hand across, others for forward two, for pirouettes and pigeonwings. Think of tune being made up of little organs for slurs, appogiaturas, crotchets, and all sorts of quavering fa, sol, las! And all this because human action is infinitely diversified.* Is not this a "royal way" of philosophising! What a broth of a revolution! *Ab uno disce omnes.* You, Mr. Editor, have published several hundred organs, also!† How many laws of motion govern the infinite motions of the universe? Have you and Dr. B. forgotten the effect of combination? Had the motions and forces of moving bodies been classified by you instead of the foolish old philosophers who wasted their time in profound thought, diligent observation, and careful analysis, we should undoubtedly have now rejoiced in as many motions and forces as there are orbits, and curves from the infinite ellipse to the perfect circle, instead of mere rectilinear forces. Gentlemen, the analysis and the generalisation which settles new faculties of the human mind, does not come by any hop, skip, and jump philosophy, nor from the revelations of one or two dreamers, epileptics, or lunatics, sleeping or waking—magnetised, galvanised, electrised, or neuaurised. What observer is so shortsighted as not to have perceived, that in the operations of the mesmeric or neuauric influence (call it by what name you please,) there are disturbing, modifying, and arresting causes, which are not only not measured and not described, but are even unknown and unguessed at, as there are in electricity, in light and heat, and in human sympathy. Study phrenology—the old phrenology, with a wise philosophy and a studious reflection upon the effect of all possible combinations of organs antagonising and harmonising, at rest and in action, singly and in groups, and you shall have a proper appreciation of whipsters, on royal roads riding over the system of Gall and Spurzheim because it is too limited!

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* The mode of ascertaining and establishing these organs, is as follows. A few days since I unfortunately trod on a wicked old sinner's gouty toe—he roared out, "D—n—t–n!" This proves that there is in the toe of every human being an organ of profane swearing.

† Not so! our correspondent has been misinformed.—Ed.

I have written too much already, in my rambling way, but I must say a word more "*Upon the excitability of the human brain by neuauric influence.*"—The neuauric fluid excites the brain as it passes into it: it passes by the most direct route, says Dr. B., toward the brain. Now, by touching the point of the chin, (to reach an organ of the brain!) and, also, by touching a place on the upper back part of the head, Dr. B. excites the organ of calorification, situated in the centre of the brain—it is a favorite experiment with him. What becomes of the mass of cerebral matter through which the fluid passes to reach the centre—why is that not excited? And all the organs on the route, why are they not on the *qui vive?* They are as quiet as sleeping mice when calorification is firing up "flames all around them," and a neuauric current pouring right into their nest. How is this?

One thing more. Dr. B.'s programme *promised experiments.* They were not given, because he preferred exhibiting before a committee. You recollect the little scene in the lecture room, when experiments were demanded. A committee of great respectability was appointed; the committee met; several weeks have passed, and there has been no report. Did Dr. B. put the committee to sleep, or did he excite their organs of silence, so that they cannot speak? Or, did his experiments dazzle them, so that they could not see? or, did the committee think it was all animal magnetism, and of course a humbug? Did Dr. B. establish his character as a great discoverer? did he take the committee a jaunt on the royal road, and have they not come back again? There could be no failure, of course, in a science so certain and so simple. Mr. Editor, you must know all about it—some of your mesmerised patients, can they not tell?

Seriously, the community, especially the class who attended his lectures, are entitled to *know the result.* No, I am wrong. The community have no right: they did not pay for the promised experiments; and the class—it is good enough for them: they should have sustained the gentlemen who wished to hold Dr. B. to his published promise.

Nov. 24, 1842. C.

For the Magnet.

EXPERIMENTS IN HUMAN MAGNETISM.

Dear Sir,—As the subject of Human Magnetism is beginning to attract more attention than formerly, it has appeared to me that its friends should make special efforts to enlighten the public mind, and remove those prejudices which are nearly universal, and which, while they exist, will effectually hinder the progress of this new and interesting science.

The grounds of unbelief appear to be, chiefly, of a two-fold nature: first, the strange and mysterious character of the facts exhibited, and which at first sight seem wholly inconsistent with the known laws of nature; and secondly, the doubtful and suspicious characters of those persons by whom these facts have been generally exhibited to the public eye, viz. itinerant lecturers, carrying with them, for the most part, their own subjects for exhibition, who are always regarded with suspicion.

It is obvious, that a science so singular and wonderful as this, can never gain credence in this manner. Let the intelligent and curious institute experiments in their own families, and among their own acquaintances, and they will soon have abundant reason to be convinced of the truth of Human Magnetism, in all its wonderful phenomena. In every village there are many good subjects for experiment, and many others who can operate with power and facility. I cannot but wish, too, that the old names of *mesmerism* and *animal* magnetism, against which there are strong prejudices, were exploded.

The following experiments upon two highly respectable and intelligent females of this city, performed by myself, may be relied on as strictly correct in every particular. I have witnessed similar results on many others, but these I exhibit as good specimens.

The first is Miss S., aged thirteen years, of a delicate constitution, dark complexion, and a highly nervous temperament. So susceptible is she, that I have thrown her into a magnetic slumber in five minutes, by barely holding her by the hand. When magnetised, like all others, her external senses are closed against all impressions, except through the operator. She is entirely deaf to all sounds from others, but will reply to the lowest whisper from him. She smells and tastes only through his organs. I have taken different articles of food into my own mouth: she always imitates all the actions of mastication and deglutition, and can tell what article I am eating. I have put a little cayenne pepper into my mouth: she would immediately complain that it was very hot, and burnt her badly. If I smelt hartshorn, she would complain that it made her nose tingle.—She was wholly insensible to external injury: a pin has been thrust through the skin without producing the least sensation, but any injury done to me she would immediately complain of as causing pain. A ludicrous instance I will mention. When she and Miss E., the other lady referred to, were both magnetised; out of mere mischief she pinched my hand severely, as she said, in order to hurt Miss E. The consequence was, *both Miss E. and herself* felt the pain alike, and fell to rubbing their hands smartly. She did not care to repeat the jest. When the eyes were perfectly closed, as they always are in this state, she could see every object in the room, with perfect distinctness, without moving her head. On being questioned, she said she could see through every part of the head, but there were two points from which she could see best—one on the upper part of the forehead, the other from the most prominent part of the occiput.

Miss E., however, possesses greater powers of vision than L., as I shall hereafter state. When first magnetised, she could not walk; but after a few repetitions, she could walk with ease. In her case, as in all others, there is a singular attraction to the magnetiser, and her very being is identified with his. Her hand would rise one or two feet to meet mine, and she would in no case suffer me to leave her. At first, before she could walk, if I left the room she would call me back, or perhaps remark that she knew I would not leave her. Latterly, she would follow me and bring me back. She could distinguish any article of mine from all others, although similar in all respects.

But the most interesting experiments, perhaps, are those relating to the organs of the *brain,*—confirming, to a great extent, the science of phrenology, while it greatly enlarges it. For these experiments, L., from the delicacy of her nervous system, is well adapted. All that is necessary to excite these organs is, to hold my finger opposite to them a moment, without contact. (I should premise, that neither of these young ladies know any thing of Phrenology.) On exciting the back part of the organ of alimentiveness, she would immediately call for food, and commence eating; but would immediately cease, on removing my finger. On exciting the fore part of the same organ, she would call for drink, and on removing my hand she would immediately cease, complaining that I would not permit her to drink. This experiment was often repeated. On exciting *acquisi-*

tiveness, she would immediately seize a knife, a piece of money, or anything of value within her reach, and hold it with a miser's grasp, so that it could not be taken from her without great violence, till some organ on the top of her head were touched, such as *benevolence*, *conscientiousness*, &c. when she would at once give it up. On exciting *reverence*, she would at once clasp her hands and place herself in an attitude of devotion, often shedding tears, and saying she felt very solemn. On exciting the organs of *combativeness* and *destructiveness*, she said she was very angry with me, would strike and pinch me, and once said she wished she had a knife that she might kill me. This from a young lady of great modesty and delicacy, only thirteen years old!

On exciting *self-esteem*, she raised her head, and on being questioned said she was thinking of herself that she was the prettiest girl in town; and on one or two very handsome girls being named, said they were very ugly. On exciting *philoprogenitiveness*, she said she did not like children, and threw away a handkerchief that was in her lap with indignation, calling it a child. On exciting the organ of *hope*, she felt happy, and saw bright prospects ahead. On exciting *ideality*, she held up her hand and exclaimed, "I see beautiful objects! oh, how beautiful!" and described the variety of colours belonging to them. On exciting *cautiousness*, she held her hands before her face, saying she was afraid, though I could not learn the ground of her fears. There is an organ of *fear*, not known to phrenologists, located in the extreme fore part of what is denominated the organ of *secretiveness*, the excitement of which produces painful results. I have ventured to excite this organ but twice, which on both occasions produced a dreadful scream, as from extreme terror, the effects of which continued one or two days. The small organs along the eyebrow have given the most satisfactory results. On exciting *number*, she would call for a slate, and solve a question in arithmetic; and on exciting the organs of *form*, *size*, and *constructiveness*, she would construct the figure of a house or something similar. On exciting *colour* she would see a landscape, picture, or some object presenting vivid colours. But the most remarkable effects on the whole, were produced by exciting the organ of *tune*. L. is no singer, and scarce ever attempts to sound a note; but when this organ was excited, she would express a desire to sing, and on some one commencing a song or hymn, she would join in and sing with accuracy, *repeating the words, though entirely new to her*, and on removing my finger from the organ, she would instantly cease, and commence again on replacing my finger, in perfect concert with the lady singing. This experiment I have often repeated, and uniformly with similar results. What renders this more remarkable, L. was not in communication with the singer, and could not hear a word unless tune was excited, nor even then if the words were repeated in an ordinary tone. The result of this experiment greatly surprised me, and induced me to repeat it a number of times, in presence of several witnesses. I would add that Miss L. has a *spinal affection* of some years standing, from which she seems to be rapidly recovering, under the use of this pleasant remedy.

The other lady, Miss E. is of a very different temperament; being plethoric, and of a vigorous constitution, of a light complexion, and possessed of considerable vivacity, and aged about 17 years.

In most of the experiments the results were very similar to those just described. I will mention a few particulars. On exciting the organ of number, she immediately stated a sum in algebra, reduced it to an equation, and proceeded to solve it. On exciting *form, size, and constructiveness*, she proceeded without saying a word to draw the form of a house;—"There," says she, with great vivacity, "is a house for you to live in, and there is your own dear self standing in the door." On exciting *philoprogenitiveness*, she took up the pencil which was still lying in her lap, and began to fondle it; some one tossed her a handkerchief rolled up; she took it, set it up in her lap and began to rock it, calling it her sister's infant, which she had never seen, and naming it Hannah. On my remarking that the child was very small, she replied, "Yes, Hannah is small of her age, but very pretty." On enquiring the color of its eyes, she said "they are of a light blue." On exciting another organ, she threw down the pretended child, and on being asked what it was, she replied, "*an old handkerchief*!" Perhaps some readers of this statement will hardly believe that this young lady was asleep during this exhibition, but I can assure them that she was sound asleep and wholly insensible to external stimuli, and when she awoke, she had not the slightest recollection of this or any other circumstance that transpired during the exhibition.

But this lady was most remarkable for what is called *clairvoyance*. I asked her the position of her eyes; she answered that they were fast closed and rolled up, which was strictly true. I then bandaged her eyes close, and took my station in a chair directly behind her. I asked if she saw me distinctly, she said she did, and that she always saw me. Some one from behind brought me a bonnet, which I put on my head; on which she immediately burst out into a loud laugh; I enquired what she was laughing at; why, says she, to see you look look so silly with my bonnet on your head. I asked her if it was the large hat which I had on when trying a similar experiment with L? "No," says she "'tis my old silk bonnet," all of which was the truth. I took a large bible in my hand which she named. I then took her work box from the table, which she immediately described. I then enquired how she could see me in the position I then occupied, without turning her head? With a laugh, she replied, "through my cranium to be sure." I asked through what part of her cranium?—she pointed to the prominent part of the occiput, and replied, "through this part;"—the same reply which L. had before given. I then attempted to make her read, and pointed to the title page of some book where the letters were large. She took it in her hand and held it near her forehead, and made out the title by spelling the words, but complained that the letters were too small, and that it hurt her to read. I gave her an eye-glass which magnifies considerably; I asked her if she could see better through that? She held it to her forehead, and replied, "I can see all the persons in the room distinctly through it," holding it still to her forehead and turning to different parts of the room. When following me about the room she would often walk backwards across the room till she came in contact with me, evidently seeing from the back part of the head, though I have no doubt she sees best through her forehead. I once proposed to her to play on her piano; and although in a natural state she cannot play without her notes, she could now play many tunes from memory. Having struck a very lively tune she called on the company to dance; at this moment I touched the organ of *reverence*; she instantly stopped, hung her head, and shed tears; after which she struck up a melancholy strain. At this time she noticed that several keys of her piano were out of tune, which she had never discovered before, and could not detect after waking. Her teacher of music being present, remarked that her ear was much more accurate than when awake. At one time I

magnetized both the young ladies together, and being, of course, in communication, they carried on a conversation, so replete with wit and repartee, that it cannot be described, and which I am satisfied they never could have done while awake. While together in a sleep-waking state, a strong sympathy existed between them, so that on exciting any organ in one would immediately produce a correspondent excitement in the other, although seated in opposite parts of the room. This was a curious circumstance that I have never before seen stated. On magnetizing the neck of E. who had a slight enlargement of the thyroid gland, L. complained that it made her throat burn, and continued to complain, holding her hand to her own throat, during the operation. They were both averse to handling metals, and a ring on my finger at one time coming in contact with L. gave her much pain. On one occasion she complained very much of a few drops of water, which fell on her hand, saying it burnt her; and a little having dropped on her apron troubled her very much, so that she at length took it and threw it aside. I do not know but this last circumstance may be peculiar to L., as I have never before noticed it.

When in this state, so far as I have seen, they are quite happy, and very unwilling to awake. I have sometimes found it difficult to awaken them in this state of mind. When magnetized together, E., whom I intended to awake first, was very unwilling to be disturbed, and undertook to counteract all my passes, and manifestly with considerable effect, as she was longer in waking than usual. On proposing to wake L. she declared positively that she would not awake. After trying some time in vain, I opened the door near her; she complained of the cold, and promised on her honor that if I would shut the door she would awake. I shut the door and she immediately opened her eyes. This shows the power of the will in this respect. On waking, they uniformly forget every thing that transpired in their sleep-waking state and are conscious only of a refreshing sleep of a few minutes duration. But when again magnetized, all the events of their previous sleep-waking are distinctly recollected as though they had just occurred. Thus the different periods of their magnetic existence constitute with them, one continued and distinct state of being, in which they are constantly progressing, till at length they seem as much at home in the *magnetic* as in the *natural* condition. I have given each of these ladies some phrase in Latin or French, to remember on waking, and they have invariably recollected that phrase and nothing else. At the last magnetising I told L. to request her aunt, with whom she is boarding, to give her coffee at breakfast the next morning *without cream*, and to forget it till that time; at the same time Itold E. to ask her mother *not to give her coffee* the next morning at breakfast, with the same charge to forget it till then. After waking I tried to bring these things to their recollection, but in vain. At breakfast next morning, while at the table, each recollected the precise charge given her which had never occurred to them till that moment. Each of them, especially E. have repeatedly described to persons with whom they were in communication, persons and places, which those persons had in their minds at the time, with great accuracy and minuteness; this arises evidently, from a sympathy with the persons in communication with them.

I have thus detailed a portion of the facts and experiments which I have lately witnessed, which may be relied on as strictly correct, and can be proved by witnesses of the highest respectability.

I have not room to state many important inferences which may be deduced from these facts. I will barely state that Miss L. has been for years suffering from a painful affection of the vertebra of the neck, from which she is rapidly recovering.

Respectfully,

JOHN COTTON, M.D.

Marietta, O. Nov. 3, 1842.

For the Magnet.

ANIMAL LIFE.

BY DAVID PORTER, M.D.

Sir:—At the suggestion of some friends, I address to you a sketch of my theory of life, in order to ascertain what relation, in its principles, it may bear to human magnetism. With regard to the peculiar claims of the latter, I know but little, having never witnessed any performances of the kind; but I gather from various sources, that the believers in human magnetism, consider the laws of life as essentially electrical. Thus far, then, we agree. For many years I have considered the great laws of life as none other than electrical laws. Nor has this been a hasty view of the matter, but the result of much patient investigation in health and disease, for more than twenty years. I have lately, moreover, in dipping into some back numbers of your Magnet, learned that electricity, galvanism, and magnetism, in your opinion are but different displays of the same principle. Here again, we shall agree; and consequently, you will perceive, that I am disposed to consider nothing in human magnetism, improbable, which may be fairly referable to electric, galvanic or magnetic laws.

The term galvanic battery, I applied to the nervous system, in a theory of life, published thirteen years since; I taught the same to students for several years before. And the only difference between us, now, would seem to be, that you have brought to light this battery in its *external* relations and powers, while my attention has been confined to its *internal* relations, as are displayed in the common functions of life. It may, then, be a matter of interest to ourselves, and perhaps to the cause of science, to ascertain how far, after pursuing different and in many respects opposite courses of investigation, we may have arrived at the same ultimate conclusions.

In bringing the subject of life before the public, we must expect to be met by prejudices from even the more intelligent reader. I will frankly confess, my theory has been considered by my medical brethren as near akin to human magnetism, and equally visionary. And from past experience, I can very easily fancy myself met by such language as this:—"Sir, I am loth to give any attention to so abstruse a subject—I have fatigued my brains already, to no purpose, in this unprofitable investigation, I have read authors without light or profit. All their explanations have only tended to render the subject more obscure. Theory after theory has left nothing in my mind but learned verbiage. And to crown the whole, the wisest of the medical faculty, whose peculiar business it is to scrutinize the subject, have given it up in despair, &c." All this I will meet by merely asking a candid and liberal perusal, while I attempt to show that our subject, after all, is but a part of mechanical philosophy, and consequently that the term *life*, necessarily involves no mystery whatever.

All writers, from Hippocrates to John Brown, seem to have regarded life as a principle, under some form or other. It was the physis or nature of Hippocrates, and moving principle of Aristotle, the soul or anima medica of Stahl; the Archeus or vital aura of Van Helmont, the impetum faciens of Kaauw

Boerhaave, the ors medicatrix nature of Gaubius, the sensorial power of Darwin, the materies vitae of Hunter, aud the vis vitae, vital force, and vital principle of later writers.

Under all its names it seems still to have been regarded as a principle, till Cullen first, and subsequently Bush and Brown, made it a forced state from the operations of agents called stimuli, or bodies whose susceptibility of their action is called excitability. By those writers, however, life is not explained, but the difficulties are merely removed from one name to another. The excitability of Bush and Brown, is really left to involve all the mysteries to which the hard names of their predecessors had been applied.

Next comes Lawrence, who makes life a state arising from certain vital properties, superadded to common matter. The vulgar, he says, are apt to regard life as the sign of a particular principle. He considers the term applicable to exceptions only, to general laws, and defines life to be "the assemblage of the functions and the general result of their exercise."

Dr. Parr rather quaintly tells us that life consists in the "animation of the primordial germ." In other words, life is life.

The difference between all these learned writers, may, perhaps, be fairly embraced in the question, is life a distinct substance, or is it merely a peculiar property of matter? We say neither; and venture to advance our humble belief, that the functions of life, like the operations of any inanimate machine, are mere results of the common properties of matter, variously modified by composition, arrangement, and form. Now, with the fearful odds against us, we venture to take ground, that neither of the former opinions can be sustained until the latter is proved to be impossible. It is a plain maxim in philosophy, that while well established principles may furnish explanations, we are not at liberty to adopt others which are unknown.

Let us, then, see whether the phenomena of life may not be mere physical results of common physical principles. If this view is made out, life will present itself neither under so mysterious an aspect as it is fashionable at present to consider it, nor as a "mere question of metaphysics foreign to medicine," as a popular medical writer of our own time and country, would have it.

The grand essentials of vital function, we may assume, are a vascular system of some kind to contain a fluid, and power to put that fluid in motion.—Among vegetables, sufficient power for the purpose, seems to exist in external agents; but where locomotion is necessary, it must be supplied by a nervous system within. The evidence of a grand moving power in every living being would appear searcely to be mistaken; and yet writers on general anatomy would seem to view the tissues, not as mere instruments of that power, but rather as many sources of it; or in other words, they contemplate the several organizations as not merely adapted to execute their functions; but also, to originate the power which impels them. The latter we must recollect, however, is altogether gratuitous. We clearly trace in every part organic provisions to nourish it, and adapt it to its functions, but none for originating power, except in the nervons system; and even here, most probably, it is not originated by any particular organization of substance; but rather in virtue of the common properties of unorganized matter.

It is very difficult to get rid of first impressions.—They abide with us, not only in our contemplations of life, but even of the works of art which we do not at first understand. The untutored savage, when gazing at any exquisite piece of human workmanship, is not likely to refer what so much delights him in its effect and operations, to mere form and arrangement of common matter, under the guidance of every day laws. His reflections naturally lead him to refer the whole to some new principle or law, or at least, to something of which he was before, totally ignorant. He cannot believe, that the whole power of the maker consisted in giving form and arrangement to common matter. Principles familiar to him in his own rude operations, seem too simple for the purpose. And thus, what is a mere improvement on his powers, seems so radically different, that his superstition is excited, and as usual, his reason takes wing.

A delusion somewhat similar to that which occupies the mind of the savage, regarding the more ingenious works of civilized man, in my humble opinion, occupies the mind of the latter regarding living bodies, which are at last, but machines of the great architect, constructed, it is true, with infinitely more skill, but out of the same raw material, which we possess in abundance. The perfection of organized bodies so far transcends our mechanical powers, that we have difficulty in conceiving them to be regulated by the same laws. The adaptations of substance, form, and arrangement, to their ends, so far transcends our powers, that, like the savage with regard to the achievements of human ingenuity, we look to something more, or refer what we see to something out of reach, of which we cannot avail ourselves, in our own performances. We may not, thus, become strictly superstitious, but, in referring to unknown causes, effects which are referable to those well known, we certainly make an approach to superstition.

I hope I shall be able to show, that no distinct principle or property is necessary for the functions of organized being, and certainly if not necessary, we cannot infer their existence according to any fair, philosophical maxims. The question, then is, do the phenomena of life require for explanation, a distinct principle, or entirely endowed with peculiar properties, or may they not be contemplated as simple displays of the common laws of inanimate matter, controlled by circumstances of mere form, arrangement and composition. After much close scrutiny, I am induced to embrace the latter opinion; I cannot agree to part with it, until some law of life incompatible, or at least, totally inexplicable by it, is produced. Accordingly, sir, if it meet your approbation, I wlll undertake to demonstrate to the readers of the Magnet, that the anatomy of living bodies presents galvanic structure, which, according to acknowledged laws, not only produces the physical functions, but executes the purposes of the immaterial part or mind of man, and instinct of inferior organized beings.

Rosstraver, Westmoreland Co., Pa. Nov. 9, 1842.

ANTHROPOLOGY.

THE MORAL FACULTY.

BY THE LATE BENJ. RUSH, M.D.

The influence of ASSOCIATION upon morals opens an ample field for inquiry. It is from this principle, that we explain the reformation from theft and drunkenness in servants, which we sometimes see produced by a draught of spirits, in which tartar emetic had been secretly dissolved. The recollection of the pain and sickness excited by the emetic,

naturally associates itself with the spirits, so as to render them both equally the objects of aversion. It is by calling in this principle only, that we can account for the conduct of Moses, in grinding the golden calf into a powder, and afterwards dissolving it (probably by means of hepar sulphuris,) in water, and compelling the children of Israel to drink of it, as a punishment for their idolatry. The mixture is bitter and nauseating in the highest degree. An inclination to idolatry, therefore, could not be felt, without being associated with the remembrance of this disagreeable mixture, and of course being rejected, with equal abhorrence. The benefit of corporeal punishments, when they are of a short duration, depends in part upon their being connected, by time and place, with the crime for which they are inflicted. Quick as the thunder follows the lightning, if it were possible, should punishments follow the crimes, and the advantage of association would be more certain, if the spot where they were committed were made the theatre of their expiation. It is from the effects of this association, probably, that the change of place and company, produced by exile and transportation, has so often reclaimed bad men, after moral, rational, and physical means of reformation had been used to no purpose.

As SENSIBILITY is the avenue to the moral faculty, every thing which tends to diminish it tends also to injure morals. The Romans owed much of their corruption to the sights of the contests of their gladiators, and of criminals, with wild beasts. For these reasons, executions should never be public. Indeed, I believe there are no public punishments of any kind, that do not harden the hearts of spectators, and thereby lessen the natural horror which all crimes at first excite in the human mind.

CRUELTY to brute animals is another means of destroying sensibility. The ferocity of savages has been ascribed in part to their peculiar mode of subsistence. Mr. Hogarth points out, in his ingenious prints, the connexion between cruelty to brute animals in youth, and murder in manhood. The emperor Domitian prepared his mind, by the amusement of killing flies, for all those bloody crimes which afterwards disgraced his reign. I am so perfectly satisfied of the truth of a connexion between morals and humanity to brutes, that I shall find it difficult to restrain my idolatry for that legislature, that shall first establish a system of laws to defend them from outrage and oppression.

In order to preserve the vigour of the moral faculty, it is of the utmost consequence to keep young people as ignorant as possible of those crimes that are generally thought most disgraceful to human nature. Suicide, I believe, is often propagated by newspapers. For this reason, I should be glad to see the proceedings of our courts kept from the public eye, when they expose or punish monstrous vices.

The last mechanical method of promoting morality that I shall mention, is to keep sensibility alive, by a familiarity with scenes of distress from poverty and disease. Compassion never awakens in the human bosom, without being accompanied by a train of sister virtues. Hence the wise man justly remarks, that "By the sadness of the countenance, the heart is made better."

A late French writer in his prediction of events that are to happen in the year 4000, says, "That mankind in that era shall be so far improved by religion and government, that the sick and dying shall no longer be thrown, together with the dead, into splendid houses, but shall be relieved and protected in a connexion with families and society." For the honor of humanity, an institution,* destined for that distant period, has lately been founded in this city, that shall perpetuate the year 1786 in the history of Pennsylvania. Here the feeling heart, the tearful eye, and the charitable hand, may always be connected together, and the flame of sympathy, instead of being extinguished in taxes, or expiring in a solitary blaze by a single contribution, may be kept alive by constant exercise. There is a necessary connection between animal sympathy and good morals. The priest and the Levite, in the New Testament, would probably have relieved the poor man who fell among thieves, had accident brought them near enough to his wounds. The unfortunate Mrs. Bellamy was rescued from the dreadful purpose of drowning herself, by nothing but the distress of a child, rending the air with its cries for bread. It is probably owing, in some measure, to the connection between good morals and sympathy, that the fair sex, in every age and country, have been more distinguished for virtue than men; for how seldom do we hear of a woman devoid of humanity?

Lastly, ATTRACTION, COMPOSITION, and DECOMPOSITION, belong to the passions as well as to matter. Vices of the same species attract each other with the most force—hence the bad consequences of crowding young men (whose propensities are generally the same) under one roof, in our modern plans of education. The effects of composition and decomposition upon vices, appear in the meanness of the school boy, being often cured by the prodigality of a military life, and by the precipitation of avarice, which is often produced by ambition and love.†

If physical causes influence morals in the manner we have described, may they not also influence religious principles and opinions?—I answer in the affirmative; and I have authority, from the records of physic, as well as from my own observations, to declare, that religious melancholy and madness, in all their variety of species, yield with more facility to medicine, than simply to polemical discourses, or to casuistical advice. But this subject is foreign to the buisness of the present inquiry.

From a review of our subject, we are led to contemplate with admiration, the curious structure of the human mind. How distinct are the number, and yet how united! How subordinate and yet how coequal are all its faculties! How wonderful is the action of the mind upon the body! Of the body upon the mind!—And of the divine spirit upon both! What a mystery is the mind of man to itself!—O! nature!—Or to speak more properly. O! THOU GOD OF NATURE!—In vain do we attempt to scan THY immensity, or to comprehend THY various modes of existence, when a single particle of light issued from THYSELF, and kindled into intelligence in the bosom of man, thus dazzles and confounds our understandings!

The extent of the moral powers and habits in man is unknown. It is not improbable, but the human mind contains principles of virtue, which have never yet been excited into action. We behold with surprise the versatility of the human body in the exploits of tumblers and rope-dancers. Even the agil-

* A public dispensary.

† A citizen of Philadelphia had made many unsuccessful attempts to cure his wife of drinking ardent spirits. At length, despairing of her reformation, he purchased a hogshead of rum, and after tapping it, left the key in the door where he had placed it, as if he had forgotten it. His design was to give her an opportunity of destroying herself, by drinking as much as she pleased. The woman suspected this to be his design, and suddenly left off drinking. Anger here became the antidote to intemperance.

ity of a wild beast has been demonstrated in a girl of France, and an amphibious nature has been discovered in the human species, in a young man in Spain. We listen with astonishment to the accounts of the *memories* of Mithridates, Cyrus, and Servin. We feel a veneration bordering upon divine homage, in contemplating the stupendous *understandings* of Lord Verulam and Sir Isaac Newton; and our eyes grow dim, in attempting to pursue Shakespeare and Milton in their immeasureable flights of *imagination.* And if the history of mankind does not furnish similar instances of the versatility and perfection of our species in virtue, it is because the moral faculty has been the subject of less culture and fewer experiments than the body, and the intellectual powers of the mind. From what has been said, the reason of this is obvious. Hitherto the cultivation of the moral faculty has been the business of parents, schoolmasters and divines.* But if the principles, we have laid down, be just, the improvement and extension of this principle should be equally the business of the legislator—the natural philosopher—and the physician; and a physical regimen should as necessarily accompany a moral precept, as directions with respect to the air—exercise—and diet, generally accompany prescriptions for the consumption and the gout. To encourage us to undertake experiments for the improvement of morals, let us recollect the success of philosophy in lessening the number, and mitigating the violence, of incurable diseases. The intermitting fever, which proved fatal to two of the monarchs of Britain, is now under absolute subjection to medicine. Continual fevers are much less fatal than formerly. The small-pox is disarmed of its mortality by inoculation, and even the tetanus and the cancer have lately received a check in their ravages upon mankind. But medicine has done more. It has penetrated the deep and gloomy abyss of death, and acquired fresh honours in his cold embraces.—Witness the many hundred people who have lately been brought back to life, by the successful efforts of the humane societies, which are now established in many parts of Europe, and in some parts of America. Should the same industry and ingenuity, which have produced these triumphs of medicine over diseases and death, be applied to the moral science, it is highly probable, that most of those baneful vices, which deform the human breast, and convulse the nations of the earth, might be banished from the world. I am not so sanguine as to suppose, that it is possible for man to acquire so much perfection from sciences, religion, liberty and good government, as to cease to be mortal; but I am fully persuaded, that from the combined action of causes, which operate at once upon the reason, the moral faculty, the passions, the senses, the brain, nerves, the blood and the heart, it is possible to produce such a change in his moral character, as shall raise him to a resemblance of angels—nay more, to the likeness of God himself. The state of Pennsylvania still deplores the loss of a man, in whom not only reason and revelation, but many of the physical causes that have been enumerated, concurred to produce such attainments in moral excellency, as have seldom appeared in a human being. This amiable citizen, considered his fellow-creature, man, as God's extract, from his own works; and whether this image of himself, was cut out from ebony or copper—whether he spoke his own or a foreign language—or whether he worshipped his Maker with ceremonies, or without them, he still considered him as a brother, and equally the object of his benevolence. Poets and historians, who are to live hereafter, to you I commit this panegyric; and when you hear of a law for abolishing slavery in each of the American states, such as was passed in Pensylvania, in the year 1780—when you hear of the kings and queens of Europe, publishing edicts for abolishing the trade in human souls—and lastly, when you hear of schools and churches with all the arts of civilized life, being established among the nations of Africa, then remember and record, that this revolution in favour of human happiness, was the effect of the labours—the publications—the private letters—and the prayers of ANTHONY BENEZET.*

I return from this digression, to adress myself in a particular manner to you, VENERABLE SAGES and FELLOW CITIZENS in the REPUBLIC OF LETTERS. The influence of Philosophy, we have been told, has already been felt in course. To increase and complete this influence, there is nothing more necessary than for the numerous literary societies in Europe and America to add the SCIENCE OF MORALS to their experiments and inquiries. The godlike scheme of Henry IV. of France, and of the illustrious queen Elizabeth, of England, for establishing a perpetual peace in Europe, may be accomplished without a system of jurisprudence, by a confederation of learned men and learned societies. It is in their power, by multiplying the objects of human reason, to bring the monarchs and rulers of the world under their subjection, and thereby to extirpate war, slavery, and capital punishments, from the list of human evils. Let it not be suspected that I detract, by this declaration, from the honour of the Christian religion. It is true, Christianity was propagated without the aid of human learning; but this was one of those miracles, which was necessary to establish it, and which by repetition, would cease to be a miracle. They misrepresent the Christian religion, who suppose it to be wholly an internal revelation, and addressed only to the moral faculties of the mind. The truths of Christianity afford the greatest scope for the human understanding, and they will become intelligible to us, only in proportion as the human genius is stretched, by means of philosophy, to its utmost dimensions. Errors may be opposed to errors; but truths, upon all subjects, mutually support

* The people commonly called Quakers, and the Methodists, make use of the greatest numbers of physical remedies in their religious and moral discipline, of any sects of Christians; and hence we find them every where distinguished for their good morals. There are several excellent *physical* institutions in other churches; and if they do not produce the same moral effects that we observe from physical institutions among those two modern sects, it must be ascribed to their being more neglected by the members of those churches.

* This worthy man was descended from an ancient and honourable family that flourished in the court of Louis XIV.—With liberal prospects in life he early devoted himself to teaching an English school; in which for industry, capacity, and attention to the morals and principles of the youth committed to his care, he was without an equal. He published many excellent tracts against the slave trade, against war and the use of spirituous liquors, and one in favour of civilizing and Christianizing the Indians. He wrote to the Queen of Great Britain, and the Queen of Portugal, to use their influence in their respective courts to abolish the African trade. He also wrote an affectionate letter to the King of Prussia, to dissuade him from making war. The history of his life affords a remarkable instance, how much it is possible for an individual to accomplish in the world; and that the most humble stations do not preclude good men from the most extensive usefulness. He bequeathed his estate (after the death of his widow), to the support of a school for the education of negro children, which he had founded and taught for several years before he died. He departed this life in May, 1784, in the seventy-first year of his age, in the meridian of his usefulness, universally lamented by persons of all ranks and denominations.

each other. And perhaps one reason why some parts of the christian revelation are still involved in obscurity, may be occasioned by our imperfect knowledge of the phenomena and laws of nature. The truths of philosophy and Christianity dwell alike in the mind of the Deity, and reason and religion are equally the offspring of his goodness. They must therefore, stand and fall together. By reason, in the present instance, I mean the power of judging truth, as well as the power of comprehending it. Happy era! when the divine and the philosopher shall embrace each other, and unite their labours for the reformation and happiness of mankind!

THE MAGNET.

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WHAT IS IT?

Our readers and patrons know, that we did not commence this work for the establishment of any preconceived, favourite, theory. Our object was, the collection of such facts as would tend to explain the phenomena of life, or to show the nature of that agency by which one living body is made to *sympathise* with another. And though we have for years been a patient observer of the various phenomena attending the states of monomania, insanity, dreaming, somnambulism, and the like, yet, it sometimes seems as though we knew less and less of the philosophy of this matter, and as if it were bordering on presumption for any one to think of penetrating the secrets of nature to the extent we have undertaken.—Although, from the first, the light has seemed to shine upon our investigations, yet we feel more and more compelled to confess our ignorance, when speaking of the phenomena attending all the manifestations of human life.—We have read the books of ancient lore, we have carefully examined the various theories put forth from time to time by the learned, for the purpose of arriving at the truth in this matter; but we freely confess, we are as far from being satisfied as ever, except in so far as we have been able, by our own experiments on living bodies, to arrive at a few conclusions, which we are ready to believe will bear the test of the most rigid inquiry.

Our readers will see, from a communication in our present number, that a correspondent has commenced a series of articles, in which he proposes to show what animal life is. Success to him. But we doubt not, that he will, in the end, beg off, like the ancient philosopher, when requested to explain the essence of God, whose answer, as often as requested, was, "Give me more time."

It is plain, that in order to ascertain what life is, we must examine it in all its different manifestations, from its beginning, up through the various changes of nature. We must look at it in cases of mental derangement, trances, catalepsy, &c.

There are numerous mysteries attending what is called the magnetic sleep, which have never been explained.—We call this state *somnipathy*, because it is a state resembling *sleep*, and it is brought on by *sympathy* with the operator. But, numbers whom we have put into this state have, while in it, inquired *why* we called it a state of *sleep?* They have insisted, that it was not a state of sleep, at all. One of our patients, while in this state, does not remember that he was ever in any other state; and yet, at the same time, all the ordinary avenues to the senses are fast closed. He can neither see, hear, smell, taste, nor feel, without the consent of the operator. How is this? He is alive; he can be made conscious of things, can be made to have clear and distinct perceptions of distant objects, which neither he nor the operator ever saw!

Again. Without the will of the operator, when restored to his natural waking state, he remembers nothing said or done to him in his state of *somnipathy;* nay, his own will, the machinery of his own mental operations, is frequently found to be completely under the will of the operator. For instance: the operator says to his patient, while in a state of somnipathy, "to-morrow, at 9 o'clock, you must read the 14th chapter of St. John." The patient is waked up, but remembers *nothing* of this direction till precisely nine o'clock the succeeding day, when he feels singularly inclined to read that particular chapter, and when the moment arrives he opens the Bible and reads it. Again: the operator says to his patient, when asleep, "to-morrow, at such an hour, you must go into this state again, or at such an hour you must fall into a state of natural sleep, and sleep just so many hours, and then wake up." The patient obeys to the very letter, and this, too, without being in the meantime able to give any reason for what he feels inclined to do. This we have done, times without number. Now we ask, What is it that subjects the mind of the patient, in such cases, so completely to the will of the operator?

And then, again, the various ways in which different persons are affected by similar processes, would seem to set all rules at defiance. One person is put to sleep by holding a piece of steel in the hand; another, in a state of somnipathy, is waked up by the same means; and by the same means one person is attracted, while another is repelled by it. One patient remembers nothing in his waking state which took place in his sleep, except what he is directed to remember by the operator; another remembers every thing; a third remembers nothing at one time in the somnipathic state, which took place in a previous state of somnipathy; but it is not so with the fourth, who remembers every thing done in the same state at all previous sittings. Another patient remembers everything in the sleeping state, from one time to another, except what he is made to do by the excitement of any one of the mental organs; but what he does under these excitements, he never has any recollection of, except when the same organs are again excited.

It is remarkable, that in some the somnipathic state differs so essentially from the waking state, while in others it seems scarcely to differ at all. Indeed, some, we know, seem to be in a state resembling somnipathy nearly or quite all the time. We know an intelligent lady in this city, who assures us that she is frequently conscious of being in two different states, in which her perceptions of things are arrived at by entirely different mental processes. Mr. Inman, of whom Dr. Buchanan makes such an account, is one of this class. We have had one patient, who would on no account consent, in his sleeping state, to be made acquainted in the waking state with

what he said or did in his sleep; and as soon as he arrived at some knowledge of this kind, he would not be put to sleep any more. He had been afflicted with a most singular nervous difficulty, and gave directions, in his sleep, for his own management when awake, precisely as though they had been designed for another person.—*Query:* How could the same *mind* be ignorant of its own volitions, so soon after they were formed?

Dr. R. Nelson, of this city, assumes that there are six imponderable elements, namely, *electricity*, *galvanism*, *magnetism*, *caloric*, *light*, and *life*. Nothing is known of either of these elements, except as they appear in their effects on matter.* And we confess, we have heard from him a few reasons in favour of this theory, which appear quite plausible.

It is true, there may be a strong *affinity* between these elements, without any positive *identity*. But the reasons for believing there was some identity between them, have appeared to us so strong, that we have been ready to admit this view, though, indeed, we are far from being fully satisfied with regard to it. It may appear, at last, that life is a distinct element; but it would rather seem to be a compound, made up, perhaps, of the other imponderable elements before mentioned. That life is *always* accompanied by electricity, caloric, galvanism, and magnetism, is certain: no change ever takes place in matter, without the action of electricity. But that life is not either of the above elements, separately and in its natural state, or without *modification* or *organization*, is plain. If it were, we should find it invariably governed by the well-known electrical or galvanic laws; this, however, is not the case. So far, therefore, as we can now see, life would seem to be the *quintessence* of these imponderable elements, modified and organised, in the matter of which living bodies are composed.

Life may certainly be an element, as much so as light or electricity; nor do there seem to be more difficulties in ascertaining its nature, than in explaining the essence of matter, galvanism, or caloric. Indeed, there are many mysteries in the laws of chemistry, over which hang clouds of impenetrable darkness; and yet, we are but too apt to suppose that the laws of matter have been all laid open to the gaze of the passing observer, while those of life and its various phenomena lie hidden where no human investigations will ever be able to penetrate.

DR. BUCHANAN'S LECTURES.

If we know our own heart, we sincerely desire to do justice to the claims of Dr. Buchanan; but we must confess, that the position in which he has placed himself to the science which this work is designed to elucidate, renders it somewhat difficult to speak of him as we could desire to do. However, we have long since decided to go for the truth, and right; and never to suffer an injury perpetrated against ourselves, to prevent us from a free and candid acknowledgment of what may be due, even to one who has rendered himself liable to the severest censure.

Want of space prevented our saying, in our last, all we designed to offer on the Doctor's theories; and it is not, now, so necessary, perhaps, inasmuch as one far more competent has favoured our readers with a communication on this subject, which will be found in our present number. We regret that we are not at liberty to give the name of the writer of that article, as we are confident, if we were to do so, it would secure for it a candid reading, and satisfy all that he is fully competent to do full justice to this subject. His opportunities for judging, in this case, have been ample; and the relations heretofore sustained by our correspondent to science, entitle his opinions to the respectful attention of all who wish to know the truth. Since that article was in type, the committee referred to by our correspondent have made their report, which covers one page of the Evening Post. They express no opinion of the Dr.'s theories, but merely give an account of his views in his own words, and also the experiments performed by him in their presence. These were not very numerous; but, as far as they went, we should judge they must have been interesting. The most of them, it seems, were performed on "Mrs. R." of this city, an intelligent and highly respectable lady, who, if we mistake not, had for a year past been the subject of numerous magnetic operations, for her own health and other purposes. The committee, we think, should have been made acquainted with this fact.

Below, we give a statement of Dr. Buchanan's theories, in his own words. It was recently drawn up for the committee appointed to report on his experiments. The reader will notice a few statements in this article, on which one remark may be given. It will be seen, that Dr. Buchanan reverses the order of science, by including the greater in the less. *Physiology* necessarily includes every thing which relates to the influence which *life* has over matter, and of course it embraces the science of the *nerves*, for there are certainly two, if not three nervous systems, if we may so speak, in the human body. There are the nerves of motion and the nerves of sensation, and then if we add, according to Dr. Nelson, the nerves of nutrition, we have at least three. At any rate, Dr. B. is at war with science, in elevating *Neurology* above *Physiology*. What should we think of an author, who should attempt to give a correct account of Physiology, and yet omit a description of the nerves, and their functions?—Yet this any one might do, if neurology includes physiology. But the reasons for the use Dr. B. is attempting to make of this term, are apparent: he wishes to immortalize his discovery of the *excitability* of the separate organs of the human brain, in the waking state, by the mere application of the human hand to the head. To this no one can have any objection; but when he extends his claims to the monopoly of what he never discovered, and to that which was known hundreds of years before he was born, he certainly exposes himself to such rebukes as our correspondent has ministered to him in our present number.

Dr. Buchanan's calling those experiments which have been performed by magnetisers upon patients in the somnipathic state, *his* experiments, is worthy only of a smile,

* As Dr. Nelson has confessedly paid great attention to these abstruse questions, it is much to be desired that he would favour the public with his views, in a volume on Human Physiology.

as it doubtless came from the same organ which was "*excited*" in his own head, when he said in his book, page 70, "*Such has been my progress, that but few important principles have been left for future discovery*"!

Dr. B. assumes, that experiments made upon subjects in the waking state, are free from "imaginative excitement," which invariably accompanies a state of somnipathy. That he errs in this assumption, we are confident. While we know, very well, how liable we are to be deceived by the results which appear in the somnipathic state, we know, equally well, that persons wide awake are as often liable to the same "imaginative excitement." It is just as easy to bring out "imaginative" results from persons in a waking state, as from those asleep; and this we have fully and repeatedly demonstrated.—The following is Dr. Buchanan's statement:

The word Neurology, as it relates to man, is but another name for the great science of Anthropology, because the science of the nervous substance necessarily includes all the manifestations of mind and life connected with or dependent upon that substance, which we know is the seat of life and the organ of the mind.

Physiology, Pathology, Insanity, and what has been called Animal Magnetism, Mental Philosophy or Phrenology, Craniosopy, Physiognomy, Education, &c. are *partial views* of the phenomena and systematic laws of the human constitution, which constitute the science of Neurology.

The characteristic feature of that system of Neurology which I have brought before the public is, that it has been established by means of cautious and decisive experiments, and may easily be verified by any individual who has the necessary patience to pursue the investigation of the subject.

The experiments consist in exciting the various functions of the nervous substance in the cranium or the body, by the application of the proper stimulating agents. Every article of the materia medica possesses, in some form, or to some extent, the power of exciting and modifying the functions: Galvanism, Electricity, Magnetism, and Caloric, possess efficient exciting powers; but no agent that I have used possesses so efficient, and at the same time so congenial an influence, as the aura of the nervous system.

This neuaura, which is the agent by which one individual makes a physiological impression upon another when in contact, is radiated and conducted freely from the human hand. The experiments which I have made in your presence, consist in applying this neuaura to the various portions of the brain, upon which it may make an impression through the cranium and the face, which present no obstacles to its transmission.

To develope important results from such experiments, it is necessary that we should make them upon persons whose cerebral action is easily excited or deranged by slight influences. It is necessary that the portion of brain which we excite should be so energetically stimulated as to become predominant over all the other portions, and to manifest its functions in a pure and distinct form, unmingled with any different or counteracting functions. It is also extremely desirable that the experiments should be made upon persons whose mental cultivation, sagacity, and integrity, render their descriptions of their own sensations cautious, exact, and worthy of implicit confidence.

As *my* experiments have been repeated by many phrenologists and others, and have generally been attempted by them during the state of somnambulism superinduced by mesmeric operations, I would remark, that such experiments are often highly deceptive and inaccurate. Experiments should be made in the natural condition of the subject, and free from the imaginative excitement which belongs to somnambulism. As far as I have heard of the result of the somnambulic experiments, I know of but few cases in which the operator has not been misled by his imaginative subject.

An extensive course of experiments upon persons of intelligence, in their natural state of mind, has established and placed beyond a doubt the fact, that the brain, as a psychological organ, manifests an immense number of mental functions, and that there are no phrenological divisions in the brain, other than the unfractuosities of the convolutions, and that there are no simple primitive cerebral organs manifesting a pure special single function, unless we carry our subdivisions so far as to make a primitive organ of each constituent fibre of a convolution.

The number of cerebral organs which we may recognise is, therefore, a matter of arbitrary arrangement, as we may divide the brain for convenience, into three, four, or five regions, or with equal precision and functional accuracy into three, four, or five hundred. From fifty to a hundred subdivisions would be as many as we can learn to locate correctly, and is a sufficient number for practical purposes.

It is established with equal certainty, that the brain is as much a physiological as a psychological organ, and that it maintains its sympathies with the body, and exercises its controlling power over it, by means of certain conductor organs at the base of the encephalon, by which it radiates volitionary, circulatory, and secretory influences to the muscular system and other tissues of the body. —Each portion of the brain has an intimate relation or sympathy with its particular region of the body, and exercises a modifying influence upon the general circulation and innervation of the system. It is through the conductor organs that the special relations of the brain and body are established, and all the physiological effects which may be produced by operating on the brain, may be as easily, and, indeed, more promptly evolved, by operating upon the corresponding conductors, which transmit their influence directly.

Thus do we explain the relations of the brain to the body, and by carrying out the mathematical laws of cerebral physiology, we show the influence of each hemisphere of the brain upon the opposite hemisphere, and through that upon the corresponding half of the body.

To explain the relations of the mind to the brain, and the peculiar mode or laws of their connexion, would not be a more difficult task than to explain the relations between the brain and the body—either of which would seem to the novice a chimerical undertaking.

This higher psychological philosophy, however, constitutes no part of the psychologico-physiological system to which I have called the attention of the public, and which aims at extensive educational and medical utility. Of this system I have given you a few imperfect illustrations, and regret that I have not had the opportunity of illustrating, in your presence, the beneficial influence which may be exerted upon the sick.

The experiments with medicines applied to the fingers, were designed to illustrate some important principles in reference to human impressibility, and the mode in which medicines produce their effects.

The experiment of bringing an impressible person into contact with the head of another, illustrates the laws of transmission of the neuaura, and presents us a method of accomplishing a perfect diagnosis of disease, as well as of exploring the physiology of the brain, and ascertaining the characters of particular individuals. This method, which I have been for some time engaged in applying to practice, must ultimately take the precedence of all other methods of diagnosis and examination, either for character, for disease, or for the establishment of scientific principles.

SYMPATHOLOGY.

We have it in contemplation to give our views, somewhat at length, on the cure of disease by sympathy. The little pamphlet we published on this subject a few months ago, is out of print; and the subject is certainly worthy of more attention than has hitherto been given to it.

We see, by a pamphlet recently sent us from Columbus,

Ohio, that the *Iatroleptic** practice of medicine has been revived, with considerable success, in that region. We are quite ready to believe, that the chief agency in this practice is sympathy, and which is exerted by passing the hands over the part diseased.

MEDICINAL.

CASES.

Within the last three months we have received accounts of various cases of relief, and cures effected, by what Dr. Caldwell calls the "cerebral medicine." The edition of our Directions is entirely exhausted; and we have heard of their having been followed in many cases with decided success.

Yet, we must caution our readers against having their anticipations too much excited by what they may hear of cures performed by sympathy. We are far from wishing to authorise the hope of cure, in any and every case of disease. Every thing, as it were, depends on the *susceptibility* of the patient. True, there may be but few cases where some slight *relief* could not be given, by an experienced operator; but we do not know enough of this agency to induce the belief, that it may, at present, be considered a panacea for "all the ills that flesh is heir to." That different operators have succeeded in performing some very extraordinary cures, is true, and we have been successful in a few remarkable cases of our own; but yet, we know but little of the laws of this agency. And this is saying no more, than we might affirm of the materia medica. Who has been able to tell, why the same medicine does not always produce the same results on different persons, and at different times, not even on the same person? Does not every thing depend upon the idiosyncrasy of the patient? And do we doubt the efficacy of any medicine, merely because it does not always produce the same effects, in the same time, upon different patients, or indeed upon the same patient?

Of one thing we feel well assured, and that is, that the reasons why sympathy has been suceessful in the cure of any disease, depends on the same, or similar conditions, which render medicine beneficial in any case, and which are not so well understood by physicians as they should be. The case of Mr. H., stated below, may illustrate this remark. When we first saw him, he was completely prostrated, and strong fears were entertained for his life. Five different and skilful physicians had been consulted in his case; and three were in daily attendance on him, when he requested us to undertake his case. But we declined, for a number of reasons. In the first place, he was very low, and we could not feel willing to undertake his case while three physicians were visiting him daily; for if we succeeded in curing him, of course, our process of operating would have none of the credit, while he had been taking the prescriptions of his physicians all the while. And then, we could not advise his dismissing his physicians, as he might die in a very short time, and in that case, of course, we should have to bear the blame. And then, again, we could scarcely spare the time necessary to devote to the case.

But finally, the patient and his family took upon themselves the responsibility of deciding, that his physicians should continue to visit him without knowing of his being attended by us, and that he should not in the meanwhile take their prescriptions, nor let them know of his decision. And justice requires that we should state, that we were by no means pleased with this arrangement, nor could we consent to undertake the case, till after much entreaty.

But the effects of our process in this case were immediate, and quite astonishing. About a week after we commenced with him, and after he had ceased following the doctors' prescriptions, his family physician observed to him, that their mode of treatment had been so successful that they concluded it best not to change it, and hence they wished him to go on with the same another week, or words to that effect. The following is his own account of his case:

XVI. EPILEPSY.

About the first of September, 1842, I was seized with convulsions, which deprived me of my strength, and which at the time entirely bereaved me of reason. They came upon me with such violence, that I was completely prostrated, and for three weeks was attended by five different physicians, who pronounced me epileptic, and said that I had a nervous affection of the heart and arteries, and they treated me accordingly. Finding myself daily growing worse, and fearing for my life, I sent for Mr. Sunderland, who, as soon as he saw me, told me that the cause of my disease was located in the brain; and after some hesitancy he consented to *attempt* my restoration by magnetism. Though I did not dismiss my physicians for some time after, I did not take their prescriptions, nor make them acquainted with the fact that I had put myself under the treatment of Mr. Sunderland. From the hour that he commenced magnetising me, *I began to recover;* and in the course of three weeks after I considered myself restored, which both myself and my family can attribute to nothing else, under the Divine blessing, but the process used by Mr. Sunderland; and, as a testimony of my gratitude, I have made this declaration of the facts in my case. P. O. HORN, 41 Suffolk st.

New-York, Nov. 15, 1842.

Witness, PETER P. GOOD.

ORGAN OF LANGUAGE.—The following account is interesting, as it tends to show the location and function of one of the cerebral organs. It is from an intelligent young lady, and may be depended on as correct:

West Troy, N.Y., Dec. 5, 1842.

I will, with great pleasure, relate the circumstances regarding what I supposed to be an affection of the organ of Language. It was, as nearly as I am able to recollect, at the age of fourteen, that, in connection with a severe pain *directly over each eye*, and an exceedingly disagreeable sensation in the eye itself, I found myself deprived of the *power of language*. At first, uttering words, though with difficulty—being unable to convey any idea in appropriate expression. The *thought* was perfectly definite; but the language in which it was attempted to be conveyed, utterly incoherent. As the pain increased in intensity, the capability of speech was entirely lost. There was always a numbness of the left hand attending these attacks. If it were endeavored to remove this by friction of the skin, I experienced a peculiar sensation in the arm, and immediately a sympathetic sensation and numbness of the tongue.

I am not aware that my mind was disordered in any of its functions, except that of investing ideas with language. I remarked above, that I usually perceived no

* From two Greek words, signifying a *physician*, and to *anoint*.

defect in the conceptions of the mind—this was the case. I was, however, during one of these attacks, unable to recollect either the names of my most familiar friends in the room with me, or even my own name! As soon as I could recal names, I became able to articulate a little, at first indistinctly, gradually recovering the use of words. I have experienced some three or four of these peculiar affections, and have invariably found myself for weeks, and even months, under an inconvenience as to language. I once attempted reading, before aware of the approach of one of these singular visitations, and found myself powerless to confine the eyes to any one point.

E. O. SHAW.

PHYSIOLOGY.

MAN AND HIS DISEASES.

The following are further extracts from the interesting work of P. Cunningham, Surgeon in the British Navy, from which we have quoted in the preceding numbers of the Maguet.

But in giving these quotations, we must repeat that we do not concur in all the views of this, or any other author, whose writings we may publish. The views here set forth are interesting, if not philosophically correct in all respects; and that some, or most of them, *approximate* very near the truth, all will probably admit, who have any considerable knowledge of the laws which govern the animal economy.

The singular relief afforded by the application of flour to a scalded foot, on board his Majesty's ship Tyne, naturally excited my curiosity and set my mind at work, to find out the cause why it and cotton wool, both apparently inert bodies, should be productive of such sudden and decisive benefit in burns and scalds. That this benefit could not solely be owing to the exclusion of air, seemed evident from both cotton wool and flour being too porous to effect this; when a thought struck me that it might arise from their non-electric conducting qualities, by which they would exclude the atmospheric electricity from the diseased parts. Seeing that should this view be correct, the same applications would give the same relief in all local inflammations, I consequently tried the effect of cotton paddings upon these, as well as upon bruises, pulmonic pains, &c., and uniformly found a similar relief to accrue. Following up this inquiry, I perceived that the similar relief by blisters, cauterisations, and plasters to pained parts, as well of dressings to sores, could be explained on the same insulating principles, seeing that the substances applied were either non-electric conductors, or converted the skin into a non-conductor by oxidating it.

While experimenting in this way, I was consulted by a female at Islay, Peru, relative to a tic doloreux of three years' standing, affecting the branches of the portio dura, the incessant torment of which had reduced her to a skeleton. The pain always commencing at the point where the nerve emerges before the ear, I forthwith charred the surface with caustic, and further insulated the part with a padding of cotton wool, when immediate relief ensued, and on my return, two months after, I found her fat and healthy. I made no further advances in the above subject until perusing Sir John Herschel's Outlines of Natural Philosophy, in 1833, when the grand idea of Dr. Arnott's, therein referred to, of the brain being a great electric battery, opened up at once a new world before me, from the connexion thus pointed out between the above and the results of my previous investigations. Upon a due reflection therefore upon the subject, I was eventually led to the conclusion, that the proximate cause of all diseases is inordinate galvanic action, and that the activity of the remedies usually administered for the relief thereof is proportioned to the local intensity of the galvanic action excited by them, or, in other words, to the facility with which their constituents are decomposed by the galvanic placids, being, generally speaking, therefore, poisonous, emetic or purgative, according to the relative facility of their decomposition. Forty years have now elapsed since Galvani demonstrated the animal body to be a galvanic machine, therefore the only marvel is, that the cause of the bodily growth and decay should not hitherto bave been ascribed to galvanic action, seeing as we do, the analogous changes it is capable of producing in dead matter, both animal, vegetable, and metallic, submitted to its influence, in the common experiments of the class-room. The above view relative to disease seems indeed fully exemplified by all the insulating remedies checking its local progress, as well as by the general remedies acting beneficially according as they diminish the intense galvanic action, by attracting the electro magnetism, exciting it from the system, or causing a translation of it from one part of the body, or from one class of vessels to another. If we apply the solutions of sulphate of zinc or copper, or of acetate of lead, to the external parts of the body, or the black oxide of mercury (as in the black wash) to a sore, or mercurial ointment by friction to the skin, we invariably find the oxide in the above metallic salts to be gradually separated from the acid, and left adherent to the cloth or the skin, and the mercury in the mercurial oxides to be also more or less disunited from its oxygen, and left in globules on the surface of the sore or that of the body. If again we exhibit the sulphates of copper and zinc as emetics, we find them always more or less decomposed on ejection, while every medical man must have repeatedly witnessed the fact of the decomposition of calomel when exhibited as a purgative, in the dark tinge which its black oxide gives to the mucous evacuations produced.

There are many well-authenticated cases of mercurial globules being found in the bony cells after death, while deaths by lightning have a close resemblance to those by poisons, a rapid lividity, tumefaction and putrefaction of the body ensuing in both. The poisonous oxides and salts we find to be those whose constituents have the weakest affinity for each other, and are consequently the most easily separated by galvanic influence. Thus metallic oxides and metallic salts are, generally speaking, more and more active in their operations in proportion to the amount of acid or of oxygen united with them, from the acid as well as the oxygen having a less and less affinity for them in proportion to the quantity of ether which the above salts or oxides contain; so that the easier the separation of their constituents by galvanic influence, the more intense will naturally be the galvanic action produced. Thus the sub-muriate of mercury, containing about four per cent. of oxygen in its oxide, operates in a four grain dose as a salutary purgative, while the muriate, containing about eight per cent., operates in the same dose as a violent poison.

We see a good exemplification of the mode of action of metallic poisons in that of the nitrate of silver, an easily decomposible metallic salt, a sort of effervescence taking place on its application to the skin, which becomes speedily black from the oxide deposited upon it; and we have only to suppose this metallic salt applied to the coats of the stomach

instead of the skin, to form a just conception of the mode in which most poisons act. The deadly consequences of the inhalation of carbonic acid into the lungs, are doubtless also referable to the intense galvanic action excited there: the body after death from this gas, pourtraying the same appearance as when destroyed by lightning or the stronger poisons; rapid swelling, discoloration, and putrefaction ensuing, while the burning heat in the breast and windpipe is similar to that experienced in the stomach from arsenic. It seems an *extraction* in intensity of the electro-magnetism of the vital parts, by which their organic structure is effectually destroyed as it would have been by an intense electro-magnetic *introduction;* there being no difference in the living body between a burn and a chilblain, or in living vegetables between a frost-bit ear of corn, and a sun-singed one.

To the above intense electro-magnetic extraction may also be ascribed the frequent fatal effects of a draught of cold water in an over-heated body.

CHANNEL OF ELECTRO-MAGNETIC INTRODUCTION.

That certain species of food and drink supply atomo-electricity to the body is evident from the heating effects that many of these produce; but the body being capable of heating itself in an intense degree by exercise alone, shows that the above are not the only mediums of electric introduction. The general belief is that respiration is the great channel through which electric heat is conveyed; but if we rely upon our own feelings, we will find that it diminishes instead of increasing bodily heat. When we are overheated we breathe quickly, which nature could never have intended to increase that heat of which there is already too much; on the contrary, our feelings tell us that respiration is a cooling as well as an exhausting process, while, when we wish to keep warm in a cold winter air, we hold in our breath, or breathe through the folds of a handkerchief to prevent the air which we find *chills* our body instead of *heating* it, from rushing in too rapidly upon the lungs. Dogs indeed, that for very wise reasons perspire almost solely by the mouth and tongues, open wide their mouths, loll out the tongues, and breathe quickly, as the only medium of *cooling* their bodies. The lungs, therefore, seem to be the great safety-valves of the body, the main channel through which the electricity and magnetism, after performing their various important functions, are conveyed off by the attractions of the nitrogen and oxygen inhaled at each atmospheric draught. We see here a wise dispensation of Providence in the amount of oxygen in the atmosphere being only one-third of that of the nitrogen; for were they equal, the atmospheric air would act as a poison to the body by the intensity of the galvanic action which this equality would admit of being excited in the system. If, again, nitrogen only were contained in the atmosphere, the body would be overchilled by the nitrogen carrying off the electricity, and leaving the magnetism, finding, as we do, that the breathing of pure oxygen, by carrying away the magnetism which *cools* the body, and leaving the electricity which *heats* it, causes death by overexcitement, or, in other words, by the inflammatory fever produced.

As the body, therefore, cannot receive a sufficiency of electro-magnetism through the medium of food, and none can be received through that of the lungs, it must receive it through the only other channel left, viz. the skin. That electro-magnetism passes readily through the skin we know from the rapid transmission of that of the electric and galvanic batteries through it, from the frequent deaths by lightning, and from the readiness with which atomo-electricity heats the whole body, when the surface thereof is exposed to its influence.

Electro-magnetism is most readily attracted, as well as carried off, by pointed substances; and hence the readiness with which the human body is heated or cooled by simply exposing the hands or the feet (pointed substances) to the fire or the cool air. The hair is also a pointed substance, and as nothing was made by the Great Creator in vain, we may be assured that *use* and not *ornament* was the purpose for which it was intended, and that the above purpose was that of transmitting electro-magnetism to the body, our own feelings as well as reasoning from facts daily presented to our view, sufficiently convince us of. To what else are we to ascribe that writhing and creeping, as well as bristling-up kind of sensation in the hair of the head, universally felt, when strong emotions move us, and so frequently alluded to by poets, and pencilled by painters. To what else can we ascribe the curious fact of every diseased blotch or pimple in cutaneous affections having invariably *a hair in its centre*, or of the hair of the head being bleached white by great mental emotion in a single night, a circumstance so analagous to the destruction of vegetable colours by the electro-magnetic currents of the galvanic trough, as to leave scarce a doubt of the hair owing the sudden destruction of its colour to similar currents rushing through it. We perceive in fact hair to prevail upon, or in the vicinity of parts in proportion to the importance for which they were designed, the head and face being most intensely covered, as appertaining to the most important organ of all, the brain, and the pubis the next so covered, as appertaining to the organs next in importance, viz. those for procreating the species; while the organs of sight, of hearing, and of smell, are all equally characterised by the long and bristly hairs surrounding them.

The depressing emotion of fear, from the paleness and cold shivering, as well as the bristling-up sensation in the hair which it produces, is evidently owing to the *escape* of electricity from the body, while that of joy and other similarly exciting emotions, by their heating and flushing effects, are in like manner evidently owing to the *entrance* of electricity into the body, because electricity being the power which produces heat, its intense escape will naturally chill and enervate the body as much as its intense entrance will flush and invigorate it. From the attactions of electricity and magnetism for bodies being the reverse of each other, it may therefore be concluded that the power of bodies to conduct them, must be the reverse of each other also: seeing that this power of conduction (as I have demonstrated in the early part of the work) must depend upon the attraction of the conducting bodies for the substances which they conduct, so that good electric must be bad magnetic conductors, and *vice versa.* All *dark* coloured bodies having, therefore, a *strong* attraction for atomo-electricity, must consequently have a *weak* attraction for atomo-magnetism, making them thus *good* conductors of the *first*, and *bad* conductors of the *last;* while again *light* coloured bodies having a *weak attraction* for atomo-electricity must, for the same reason, have a *strong* one for atomo-magnetism, rendering them good conductors of the latter, and bad conductors of the former. Dry wood being a bad, and moist wood a good *electric* conductor, so also dry bodies I conceive will be good, and moist bodies bad *magnetic* conductors. From the above, therefore, the *colour*, as well as the state of *humidity*, of the hair, must have great influence on the human temperament by the differ-

ent amounts of electricity and magnetism, which the different grades thereof are capable of conducting into the system, a conclusion sanctioned by the observation of all ages as to the colour of the hair influencing the disposition.

The different coloured rays of the sun containing (as I have previously exemplified) different proportions of electricity and magnetism, therefore different coloured hairs will naturally attract the rays corresponding to their colour, and thus render the temperament either a warm or a cold one, according to the respective amounts of electricity and magnetism which they are capable of conducting. Red-haired people have always been as noted for possessing warmer passions than those with other coloured hair, as the red rays of the sun have been for containing more atomo-electricity or heat than any other description of his rays, the white hairs of the Albino youth pourtraying, on the contrary, a temperament *naturally* cold, and the white hairs of old age, one made *artificially* so through the blanching of them from long continued electro-magnetic action; attracting the cold, pale-coloured rays of the sun according as they assimilate to them in tint.

BRAIN AND NERVES.

Although by the ready introduction of electric matter through the medium of the skin, as before exemplified, it appears evident, that local parts derive much of the electro-magnetism which retains them in health, or pushes them into disease, from *external* sources; yet some great internal reservoir must be required to supply the above when external sources fail, as well as to give a leading direction to all those energies primarily derived from internal impulses, or in other words from volitions of the mind. That the brain is this great reservoir our internal feelings tell us if nothing else did; while our external senses similarly point it out as the great centre to which all their currents tend—those senses by which we judge and form our opinions, viz. the senses of hearing, seeing, smell, and taste, all of which are concentrated round this great centre, for no other seeming purpose except that of a more speedy and intimate communication therewith. Mass-electricity and mass-magnetism, however, being contained principally on the surface of bodies, therefore we may conclude that it is contained principally on the surface of the brain, and that of the various lobules and cells into which it is divided, so divided in all likelihood for no other purpose except that of containing a large electro-magnetic amount in the least possible space. The brain being a fatty substance, and fat being a bad electro-magnetic conductor, we may presume that the membranes are the containing bodies, the brain merely serving as their insulator, to prevent a too promiscuous communication among the various organs of the head, by which their diverse functions might be less distinctly as well as less energetically pourtrayed. The nerves being mere prolongations of the brain, must necessarily be the ducts along which the electro-magnetic current poured out from the brain is conveyed; the pia mater being in all probability the membrane conveying it from (as well as of containing it in) the brain; while being conveyed along the outside of the nerves, they will thus be able to convey it in a larger mass as well as with less risk of injury to their structure than if their more internal parts had been made the medium.

The voluntary nerves are large and have few ganglia or plexuses, because the volitions of the mind through the electro-magnetic current requiring to be powerfully as well as quickly conveyed, large channels, free from retarding obstacles, are consequently required so to convey them.

The involuntary nerves, on the contrary are small, have numerous ganglia and plexuses, and communicate with almost every nerve of sense, or division of the brain; because the electro magnetic current to be conveyed is small, and consequently small ducts suffice to convey it: its impetus at the same time requiring to be checked by the retarding attractions of ganglia and plexuses, to prevent its too intense rush upon the vital parts; while an extensive system of sympathetic communication is demanded between these vital parts and every division of that great centre of sympathy, the brain as well as with the nerves conveying the external sympathies thereto, in order that those vital parts, on which all others are dependent for vital sustenance, may respond to every call which the brain makes upon them for a supply thereof to the parts of the body requiring such, over the whole of which parts it exercises so supreme a control.

The smallness of the origin of the vital nerves in the brain, and the retarding action of the ganglia and plexuses upon the electro-magnetic currents, will also prevent the will from exercising a direct influence over the vital parts; an influence which would necessarily tend to endanger life, by placing it under the unchecked control of all the passions and emotions to which the mind was exposed; and I doubt not but a dissection of those recorded to have been able to stop the action of the heart at will would have shown the origin of the sympathetic in the brain to be unusually large. That electricity is in considerable excess over magnetism in the human body, is evident by the general high temperature which it maintains; while considering nitrogen as carrying off the superfluous electricity, and oxygen the superfluous magnetism, we may presume that they were wisely apportioned in the atmosphere to the respective amounts of electricity and magnetism which the body contains. The nitrogen being double the amount of the oxygen in the atmosphere, it may be concluded that the amount of electricity in the human body is double at least that of the magnetism. The amount of electricity will thus be double also that of magnetism on the superfices of the brain; and as they always occupy opposite sides of bodies, they will in all likelihood occupy all opposite superfices of the pia mater, and consequently move along the nerves in the same way, unless it may happen that one moves along the inside of the dura mater and the other along the outside of the pia mater.

MUSCULAR ACTION.

An increase of electricity in bodies causing them to expand and a diminution of it in them to contract, so to an alternate increase and diminution of electricity in the muscular fibres, muscular actions may be ascribed, seeing that in the human body in a state of health, electricity exceeds magnetism, and therefore must render the latter subservient to its inclinations. The will has sufficient power to regulate the actions of the voluntary muscles, by impelling the electricity into one set while withdrawing it from another, and by this means cause an alternate elongation of the one and contraction of the other, thus enabling the voluntary muscular actions to be effected. We find, however, that all powerful exertions of the voluntary muscles require to be assisted by drawing a full draught of atmospheric air into the chest, which by its affinity for electro magnetism, attracts that of the contracting muscles towards the lungs, and thereby enables a stronger muscular contraction to be effected, than could be effected by the will alone. A curious example of this power of an atmospheric inhalation over the

electro-magnetism of the human body is shown in the singular ease with which one person may lift another from the ground, by making the effort at the moment of drawing in the breath, which attracting the electro-magnetism of the body toward the lungs, thereby diminishes the body's hemispheric attraction, or, in other words, its weight. To attain, however, this point, the person lifting must inspire at the same instant as the person lifted, otherwise the electro-magnetism of the former will flow into the latter, and thus in a great measure neutralise the effect aimed at. The action of the heart and arteries depending but little on the will, a different system of machinery is consequently required to carry it on.

I have before shown, that white bodies are bad, and coloured bodies good electric conductors: consequently, while the red muscular parietes of the auricles and ventricles are good conductors, the *white* tendinous partitions separating them are bad conductors; so that the electricity is insulated in the above parietes, until its quantity is sufficient to overleap, as it were, this tendinous barrier, and enable it to pass onwards. On the electricity, therefore, being poured by the great sympathetic nerve into the muscular parietes of the right auricle, the latter will consequently expand, thereby dilating the auricular cavity, and enabling the venous blood to flow freely into it. While, however, this expansion is taking place in the auricle, its adjoining ventricle is undergoing a corresponding contraction, from its electricity passing onwards to the left auricle, leaving the right ventricle thus in a fit state to attract the superabundant electricity from its auricle, and so transmit it onward through the left auricle and ventricle of the heart, and finally through all the vessels of the body, carrying the blood at the same time along with it in its progress by the vascular contractions and expansions which it excites.

[Our author has a chapter, which follows here, on the conception of the human system, but which we omit.]

INFLUENCE OF THE MIND ON THE FŒTUS.

The belief of objects influencing the fœtal growth and appearance through the medium of the mind, is too deeply in accordance with the human feeling ever to be shaken by any theory however plausible. It is indeed as old as the days of Jacob, when he placed the peeled rods before the conceiving flocks and herds, and thereby engendered a motley-coloured progeny; and if we dispassionately examine it, we shall find more and more reason to appreciate its justness. It is in fact nothing more than a manifestation of that influence which the mind, either directly or indirectly, exercises over every action, voluntary or involuntary, intellectual, mechanical, or chemical, in the human body. We excite the voluntary muscles to direct action, because the involuntary nerves have large communications with the brain, and are consequently capable of powerfully rousing the parts with which they are connected, by the energy of a single impulse, while the communications of the involuntary nerves with the brain being small, and the motion of the electro-magnetic current conveying the impulses also retarded by the influence of ganglia and plexuses; consequently the lesser energy of the impulse, as well as the retardation thereof, conduce to that deception we popularly labor under, of the will not exercising its influence over the heart, stomach, intestines, &c., the same as over the voluntary organs. In the involuntary organs, something like a forcing power is requisite to make the mind's influence sufficiently apparent, such a power as our passions or our fears conjure up; the heart, the stomach, the intestines, and, in fact, the minutest functional part being eventually influenced thereby, in proportion to the intensity or continuance of that power. Thus, joy, anger, surprise, and fear, all primarily agitate our hearts by quickening, diminishing, or rendering irregular its action,—sickness and vomiting probably next ensuing, according to the nature of the mental impression, even the intestines and bladder being ultimately affected in cases of great fear, causing an involuntary discharge of their contents by the escape of that electricity on which the expansion of their muscular coats depended.—The very thought of eating fills our mouth with saliva, while shame and anger flush our cheeks, and fear blanches them—all in obedience to that indirect mental impulse we all feel, but the theory of whose action defies all our powers of unravelment.

While warmed by the visionary contemplation of imaginary objects, we feel every thing thus pictured forth thrilling through us in intensity, proportioned to the exciting, soothing, or saddening sensations to which they give rise. We can in the mind's eye picture forth imaginary fields we intend to ornament, or houses to build, and I doubt not, were it permitted us to have the whole arcana of the mind tinted out in panoramic outline before us, we would find every object pictured forth before the mind's eye—pictured forth also in electro-magnetic coloring upon the portion of the brain destined for such impressions. The direct or indirect influence of the mind being such over all the feelings and functions, I see no just reason, therefore, why the same influence should not similarly affect the great function of the uterus in the moulding of the fœtus. In what other way can we account for the resemblance of the infant to the father or the mother, or to particular relatives whom the mother has been interested about, and consequently would have oftener in her mind's eye? and why should we not extend the same principle to every other object that moves her deeply during the early months of gestation, before the fœtal form was perfected?

Form, feature, colour of hair, as well as preternatural marks or mouldings, may all, I conceive, be produced by objects moving the feelings of the mother strongly during the above period. If she think much about the husband at this time, the child will be disposed to resemble him, and if much about herself, to resemble her: but as every object of nature that powerfully excited her would tend to similar results, I would therefore conceive the resemblance of a child to any other person beside the husband, as no more a proof of the mother's infidelity, than the various blemishes or deformities that might disfigure it. Hence the feeling seems founded in reason, which prompts husbands to comply with the fancies of their wives during gestation, as well as to guard against their witnessing any horrifying sights which might tend to disfigure the infant.

The different proportions of electricity and magnetism existing in the atmosphere at the period of the fœtal formation of hair and feature, will also have an influence thereon. Thus we find the hair and eyes of the mixed Gothic race born in the West Indies almost uniformly dark, while those of the same race, born in the polar regions, are more or less light-colcured, from electricity being superabundant in the first region, and magnetism in the second; and thus each forming the hair and eyes of a colour in accordance with its own affinities. It is as much to the natural superabundance of atomo-magnetism in the atmosphere, as to its intense reflection from the snow, that we may attribute the turning white of the coats of animals during the polar winters, a magnetic influence as destructive to the colouring matter of the eye as it is to that of the

hair: snow blindness and moon blindness being both referable to a blanching of the pigment of the eye by the atomo-magnetism reflected from the above bodies. If we carefully investigate into the causes of the different coloured hair and eyes of children, we may hereafter find that much of the above depends upon the earlier fœtal development being in summer, or in winter, or even when snow was upon the ground, or magnetico-epidemic diseases prevailed, the electric prevalence tending to darken, and the magnetic to whiten, every susceptible body exposed to their influence.

THE NERVOUS INFLUENCE.

DEFINITION OF SELFISHNESS.

We have a natural aversion for painful, and a natural wish for pleasing sensations, both moral and physical. We therefore endeavor to avoid whatever causes the one, and to seek whatever produces the other, as far as lies in our power. The feeling is in itself innocent and allowable; indeed, it forms part of our nature, and cannot be destroyed; but it may be so strong as to overcome every consideration for the comfort and happiness of others—this excess is selfishness, which if not repressed, draws us more slowly, but more irrevocably in the path of vice, than the violence of passion. By degrees, all that opposes our gratification becomes hateful; we acquire an aversion for all those who may interfere with this object by their own views, their authority, or even their existence: the feeling grows more insatiable by indulgence; we end by overthrowing every barrier that opposes us, and by perpetrating every crime that is necessary for the accomplishment of our designs. Such is the course of the cold-blooded villain; and if I were to decide upon the temperament of Satan, I should pronounce it to be phlegmatic.

SELFISHNESS INNATE.

Selfishness, as far as it consists in an immoderate desire for self-gratification, is innate, and forms part of the animal character which may be easily observed in children; but the evil feelings which frequently accompany extreme selfishness grow from it by the culpable operation of the mind, in consequence of the opposition which the passions of others present to our views and wishes—we bring into the world an unreasonable desire to *please ourselves*, but not to *injure others*. The malignant passions are what I call spiritual vices, and have not, like irascibility, cowardice, gluttony, etc., their origin in the nervous constitution. Hatred, malice, revenge, and envy, form part of the black catalogue. Of all these revenge is the most natural, and envy the least; because it is a painful feeling excited by the happiness of others, even when it does not interfere with our own. I therefore look upon it as the climax of spiritual depravity.

SELFISHNESS THE MORE USUAL ATTENDANT OF THE PHLEGMATIC CHARACTER.

Selfishness is the more usual attendant of the phlegmatic than of the ardent temperament; because it is more compatible with deficiency than than with excess of feeling, and it is of course more likely to inhabit a *cold* heart than a *warm* one. The ardent temperament is also more susceptible of mental and bodily pain than the phlegmatic; and we generally find that those who have suffered most know best how to feel for others.

GENEROSITY NOT CONFINED TO THE ARDENT TEMPERAMENT.

I am far from asserting, however, that generosity of feeling exclusively belongs to the ardent temperament; on the contrary, it is in the phlegmatic character that sensibility is the most pure and disinterested, when it *does* exist, because it is free from passion, and from any view to selfish gratification. But then we only meet with it in minds of a certain cast, whereas sensibility *pervades* the ardent temperament, owing to the superior delicacy of the nervous organization; in one temperament it is constitutional, in the other it is not.

DEFINITION OF SENSIBILITY.

This will be best understood, by defining the term sensibility. It is, I apprehend, the combination of a quality of the mind, and a peculiarity of the nervous constitution. When a benevolent turn of mind is united to a strong nervous susceptibility, it constitutes genuine sensibility. Benevolence without delicacy of feeling, is mere good nature: susceptibility of feeling, without benevolence, is mere irritability.

SENSIBILITY OF THE ARDENT TEMPERAMENT.

Genuine sensibility most naturally belongs to individuals of ardent temperament and powerful intellect. The weaker the mind, the more it assumes the character of nervous irritability; and this causes us to feel more keenly for ourselves than for others. True sensibility may be met with in phlegmatic individuals of high intellectual powers; otherwise this constitution is seldom troubled with any stronger sentiment than goodnature. Goodnature is, however, the first degree of sensibility; for it is a feeling of general benevolence—a feeling that leads us to sympathise with our fellow creatures in their grief and joy; and to alleviate the one and contribute to the other, as far as lies in our power; but the sympathy is neither deep nor permanent, and the good will is too indiscriminate to call forth much corresponding sympathy. We find four different kinds of sensibility in the four different classes of character.

SENSIBILITY OF THE STRONG MIND AND ARDENT TEMPERAMENT.

First, the sensibility of the strong mind combined with the ardent temperament, which is of the source of all the *natural* great qualities of the mind, that is, of the qualities that are born with us, and that develope themselves before external causes operate any change in the disposition: an innate love of truth, a high sense of honour, and an exquisite delicacy of feeling adorn this lofty character—enthusiastic in friendship, devoted in love, magnanimous in enmity, generous and humane to all suffering beings—this favorite of nature is formed to command admiration and captivate the affections. But long-continued happiness seldom falls to the share of so susceptible a being; and in a world of cares and troubles the joys of life can only serve to brighten his horizon with a transient light, as the aurora borealis illuminates the northern skies with a temporary splendor—deep, tender, and impassioned, this kind of sensibility is too apt to prey upon the heart that harbours it, and to wear out the constitution by exhausting the nervous energy.

SENSIBILITY OF THE WEAK MIND COMBINED WITH THE ARDENT TEMPERAMENT.

If the exalted sensibility of a great mind be a fatal gift, how much more detrimental to the happiness of its possessor is the susceptibility of a narrow mind combined with the ardent temperament; the feelings are keener, the power of regulating them weaker, and the capability of sublime enjoyments, which is some compensation to an elevated mind, is totally wanting: to which may be added, that the morbid irritability of the body, especially of the stomach

(that scourge of the ardent temperament) is borne with less patience. In this character, the acuteness of the sensations creates an eagerness for the gratification of every wish, that gives a certain degree of selfishness, though this quality is not natural to the ardent temperament, and it causes an impatience under the slightest opposition, that is one of the chief causes of ill temper. Ill temper! thou troubled and harrassing spirit, sent by the enemy of mankind, to blast all who yield to thy influence! who keepest more than half of the human race within thy dark and stormy dominions! what an abode of peace, and joy, and love would this earth be, if thou wert only exterminated! Villains and their crimes only disturb us at times, as tempests obscure the summer sky; but where thou spreadest thy dusky wings, the brightness of the daily sun is lost, and the flowers that spring up in the thorny path of life are blighted under thy baneful shadow! Unfortunately, this quality does not belong exclusively to the weak and narrow minded: the most highly-gifted mortals are equally liable to irritability, especially if harrassed with chronic diseases, but in this case it is usually accompanied by generous feelings, while, in the former, it is apt to shew itself implacable, blind, tenacious, and incorrigible; increasing in acrimony with increase of age. The reflexion and experience of years often calms the turbulent passions of a strong mind at the decline of life; when all earthly things are passing away, the storms of the world cease to darken the mental horizon; their thunders roll at a distance; and the decaying light of a great intellect sinks, tranquil and unclouded, with all the softened splendour of the setting sun. We have now considered the defects that often attend *mere nervous* sensibility, which is certainly an enemy to inward peace, productive of vehement and ungovernable passions, of a jealous and unreasonable wish to monopolize all the affections, of a vain conviction of a superior delicacy of sentiment, and of all the evils that result from the ascendancy of the imagination over the judgment.

PHLEGMATIC TEMPERAMENT WITH MODERATE CAPACITY.

We can hardly find a greater contrast to the nervous irritability of a weak and ardent mind than the calm and placid feeling of general benevolence that constitutes the sensibility of a plain phlegmatic, supposing the goodness of heart, and the capability of the understanding to be equal in both individuals, the surface of their minds will present as different an appearance as the smooth summer lake reflecting the soft beams of an unclouded moon, and the restless ocean fretting upon a rocky shore in a stormy latitude. Natural, cheerful, and unpretending, obliging without effort, and without display, goodnature is always pleasing, though its indiscriminate application diminishes its value in our eyes; for I believe that we would rather be harrassed by those who love us *exclusively* than made easy and comfortable by attentions that must be enjoyed in common with others.

PHLEGMATIC TEMPERAMENT COMBINED WITH A STRONG MIND.

The sensibility of a high-minded phlegmatic, at once rational and tender, is *formed* by the reason and the imagination; it is not a natural quality, but a superstructure raised by these faculties upon a foundation of innate benevolence. This kind of sensibility, which is rare, because it does not belong to the natural character, may easily be distinguished from every other by the period of its developement, for it appears after the reason is matured, and it gains strength with increase of years; whereas mere goodnature and nervous sensibility shew themselves in early infancy, and lose their warmth (the latter at least) when the feelings are blunted by age. If we could look for *true* happiness, which can only be obtained in proportion to our capability of bestowing it upon others, we must seek it in this beautiful combination of diffused benevolence and particular affections; in this angelic feeling of love and charity to every fellow-creature, guided by the reason to every useful purpose, without the least reference to self, and accompanied by an unaffected simplicity that neither seeks nor shuns the attention of the world, to which it is indifferent, only looking to the approbation of the Father of Mercies, and the eternal reward of the just. If the human mind can be imperturbable, it must be where successful benevolence produces a sublime feeling of satisfaction, and ingratitude rouses pity rather than indignation; where every sentiment of anger and impatience is extinct, and that we say with the angels, in all sincerity, and at all times, "Peace, goodwill towards men."

From this explanation it will be sufficiently evident that I have no intention of utterly denying sensibility to the phlegmatic character, nor indeed can I deny some portion of selfishness to the ardent temperament: for bad tempers may be found combined with every degree of intellect, and those who indulge irritable feelings at the expense of the feelings of others are certainly selfish so far. Hence generosity and selfishness sometimes exist in the same character: this may seem paradoxical, but it is only one of the innumerable inconsistencies of our nature.

ADVANTAGES BALANCED IN EACH TEMPERAMENT.

Hitherto I have seemed to bear hard upon the phlegmatic temperament, but I do not suppose that merit belongs to one constitution rather than to the other—each possesses its own peculiar advantages and disadvantages. If the vices of the phlegmatic temperament are of a darker hue than those of the ardent, its virtues are of a more pure and intellectual cast: if the malignity of the phlegmatic character is more iniquitous than the violence of the ardent spirit, the virtues of a mind superior to every passion, acting habitually from moral and religious principle, and in the full and uniform possession of its own powers, commands more respect, though perhaps less love, than the natural goodness of a warm heart, whose influence is partly involuntary. Kind feelings are, it is true, most natural to the ardent temperament, springing spontaneously therein, as fragrant shrubs spread in the wildest luxuriance under the influence of a tropical sun; but good principle can supply their place in a colder constitution, and lead us further and more steadily in the service of others, than even the most refined sensibility, unless this be aided and regulated by a very sound judgment. A high degree of sensibility under the *complete* control of the intellectual power would constitute perfection: such a combination of the noblest attributes of each temperament, does not belong to the nature of man; but it was the character of our Divine Model which we must imitate, by curbing our feelings, if they are violent, and by forming and elevating them, if they are deficient. The last duty may appear to some quite impossible; but there is no imperfection which the mental power, vigorously exerted, may not remove with the Divine assistance. Under the influence of high motives, our spiritual part may overpower the animal nature, and by its constant operation, *create* sentiments pure and noble, and worthy an intellectual being. The phleg-

matic character possesses the capability of being *moulded* by the rational powers; the feelings of which it is susceptible are not violent, but steady and deep; they are more equable, and consequently productive of more tranquil happiness to the objects on whom they are bestowed, than those which appertain to the ardent temperament. The latter, indeed, shew more passion and raise stronger emotion, but strong emotions do not constitute true happiness. The sparkling flame that expends itself in blazing to the skies, and the impetuous torrent that pours its waters for a season through the arid plain, are far less useful than the silent and steady sunshine that illuminates each day of our existence, and the gentle current that bears us smoothly on in its tranquil bosom.

PHYSICAL CHARACTERISTICS OF THE PHLEGMATIC TEMPERAMENT.

The phlegmatic temperament is distinguished by light air, eyes, and complexion. This physical attribute pervades it throughout, except where a modification has been produced by intermarriages between the two temperaments. In this case, the characteristics of each are softened and blended, and sometimes, but rarely, the physical distinctions of the one are joined to the moral and intellectual character of the other. The complexion excepted, a greater variety may be observed in the physical characteristics of the phlegmatic than of the ardent temperament. In combination with a firm fibre, it exhibits athletic strength, and the giant belongs to this temperament, while the dwarf is more frequently found in the other: when, on the contrary, it is united to a lax fibre, it shews weakness in every degree. The first combination is best exemplified in the heavy English clown: as the individuals in this class generally intermarry, they are more likely to show the peculiarities of the constitution in all its purity; here, the round head, the dull eye, great ears, low forehead, clumsy form, and above all the flat instep, proclaim the phlegmatic temperament without intermixture. A good-humored corpulency and the glowing hue of health, are its frequent accompaniments, for physical strength and a placid temper can hardly fail to produce a wholesome enbonpoint; the freshness of youth is preserved longer, owing to the absence of irritability. The senses are often dull, but this arises more from a tardiness of communication between the external organs of sense and the sensorium, than from any organic defect; the length of the interval, which I have marked distinctly, I ascribe to a sluggishness in the motion of the nervous fluid. When the phlegmatic temperament is united to a lax fibre, and runs into *length*, it exhibits more gentility in the external appearance: the form is more slender, the head smaller, the limbs more delicate, and the activity resulting from a light and supple frame supplies, in some measure, the place of strong muscles and large bones. The characteristics of the phlegmatic temperament, thus softened down, are more suitable to the female than to the male sex, for they may combine all that makes woman lovely. The eye of heavenly blue, the light brown hair, the complexion of lily white, mingled with the soft tints of the rose, the round limbs and slender shape, and the angelic sweetness of a countenance unruffled by the storms of passion, which constitute the charms of a northern beauty, are irresistibly attractive.* At the same time, the phlegmatic temperament is by no means incompatible with manly beauty, when it exhibits the majestic mien, noble stature, and calm dignity of a Hercules, and can be likened to "Il leon che posa," as Dante would express it; but this style of figure and appearance is as rare as the happy combination of strength and tranquillity which it denotes.

* Such is the wife that a prudent man ought to choose; for the most rational expectation of a constitutional quiet temper is derived from a fair complexion, unless some confusion in the hereditary qualities has arisen in consequence of cross-marriages. Above all, I would recommend it to all those who value a peaceful life not to select a short woman, with black hair and a strong fist.

THE PHLEGMATIC TEMPERAMENT COMBINED WITH A WEAK INTELLECT—INTELLECTUAL CHARACTERISTICS.

Dulness of perception, weakness of memory, total want of imagination; the ideas are few, and the notions are formed with slowness and difficulty. From the imperfection of the intellectual and mechanical action results every degree of stupidity, down to idiocy, which shows a morbid deficiency of the cerebral power.

THE FEELINGS—GOOD QUALITIES.

Mildness, gentleness, meekness, goodnature, evenness of temper, contentedness, humility, patience, taciturnity, industry, frugality, an exact but often mechanical performance of the moral and social duties, and the absence of every violent feeling.

PASSIONS.

Avarice is as much the constitutional passion of the phlegmatic, as ambition is of the ardent temperament; but it is seldom found in combination with a strong intellect. It is the *only* passion of a feeble phlegmatic mind, the feelings in general being too weak to come under that denomination, except in some few hearts so thoroughly indisposed as to harbour envy and cold malignity.

EVIL QUALITIES.

Here we may find the greatest degree of selfishness, sensuality, covetousness, sullenness, obstinacy, ingratitude, and insensibility; a weak and indolent disposition, and a total want of mental as well as bodily energy. The temper, though not irascible, wants generosity, and when once offended is not easily appeased; for placability can only be the virtue of a strong mind or a warm heart, unless it is created by the power of religion. Low cunning, and a propensity to thieve and to lie, are sometimes to be met with, but this may result from a bad education and narrowness of intellect, in either temperament. The defects of the phlegmatic character are most apparent in uncivilized man, who exhibits a sullen ferocity, mingled with cowardice and cold-blooded cruelty, instead of the fierce and heroic courage of the savage of ardent temperament.

THE PHLEGMATIC TEMPERAMENT COMBINED WITH A STRONG INTELLECT—PHYSICAL CHARACTERISTICS.

The energy which is derived solely from strength of the intellect, and not from the constitution of the nerves, cannot be supposed to modify the external form; we even find that a great mind, in this case, may animate a frame of the most unpromising appearance, but the countenance will reflect the benign intelligence and dignified composure that reigns within us, as in the opposite temperament we see the animated and ever-varying features illuminated by a soul of fire.

INTELLECTUAL CHARACTERISTICS.

The mental powers in this constitution are more characterised by solidity than brilliancy, and their mode of operation may be described by the motto, "slow and sure." The perception is clear, the judgment sound, the reasoning faculty strong; the imagination participates in the strength of the other in-

tellectual powers, but though it may be *fertile* it cannot be *lively*, unless it is animated by a combination of the two temperaments. Wit derives so much assistance from the rapidity of the cerebral action, that we never find it in a constitution totally destitute of nervous energy, and the inventive power of the purely phlegmatic brain is always of a serious cast.

ITS FEELINGS—GOOD QUALITIES.

It is in this character that we usually find fortitude, justice, temperance, prudence, discretion, probity, cool and steady courage, firmness of purpose, unwearied perseverance, unshaken constancy, inflexible integrity, universal charity, candour, forbearance, equanimity, purity of mind, habitual serenity, calmness and moderation in prosperity, resignation in adversity, and an equal, mild, and rational spirit of devotion; to which are sometimes added, feelings profound and unchangeable, lying too deep to be within the reach of common observation. Here truth and honour find a secure foundation in conscience and principle, while, in the ardent temperament, they have sometimes no other support than good feeling, which is not calculated, from its nature, to form the sole prop of human virtue.

EVIL QUALITIES.

If the disposition is unamiable, it shews selfishness, pride, haughtiness, reserve, frigidity, sternness, implacability, tenacity of opinion, uncharitableness, hypocrisy, suspiciousness, want of liberality combined with ostentation, and the absence of every generous sentiment. When angry feelings arise, they have their source in wounded pride or disappointed selfishness. The passion of anger does not then burst forth with fury and vehemence: it shews itself by the cutting sarcasm, the bitter taunt, the cold sneer, the merciless reproach, or it is concentrated and broods in sullen silence within the dark recesses of the soul.

OBSERVATIONS—VARIETY OF CHARACTER IN THE PHLEGMATIC TEMPERAMENT.

The phlegmatic temperament contains a greater variety of characters than the ardent, because the reason frequently effects great changes in the feelings of the former, while those of the latter, in general, only require to be *moderated*. In the phlegmatic temperament, the intellectual and animal parts of our nature are sometimes characterised by *opposite* qualities, and the mere development of the understanding has often effected such an alteration in the disposition, that the boy has been scarcely recognizable in the man. The natural operation of a good intellect is to elevate the mind, and instances have occurred within my own observation, in which selfishness, sensuality, duplicity and pusillanimity, have been entirely superseded by disinterestedness, sincerity, courage, and temperance. A *partial* change causes great inconsistencies in the internal feelings, if not in the external conduct. Of all characters, this is the most difficult to understand: when the constitution is phlegmatic, and the judgment directs the actions and governs the feelings, the natural disposition may escape the penetration of the keenest observer, while the ardent character stands revealed to every eye, that is, with respect to its qualifications; for discretion is by no means incompatible with it, when the intellect is good.

ANIMAL CHARACTER HEREDITARY.

Such, in my opinion, are the general effects of the nervous influence upon the character; many errors may have crept into the enumeration of the attendant qualities, but with regard to the hypothesis, every observation during a course of years has strengthened my conviction of its correctness.

I have only to add, that the ardent and phlegmatic characters are *hereditary*, that is, as far as they are influenced by the nervous action. The talent which often prevails through whole families, once led me to suppose that the powers of the immaterial principle were inheritable; but this opinion, which to me was always unsatisfactory, has given way to the belief, that family talent is attributable to the inheritance of the nervous constitution, and need not imply any transmission of the pure intellectual powers. The physical constitution is certainly hereditary; and if the energy of a well-constituted brain gives facility to the mental operations, we may attribute family talent to the transmission of *family brains*, especially as it is observable that the powers thus inherited are precisely those which derive the most assistance from the cerebral action. The inheritance of the character is more evident in the brute than in man, because it does not, as in a rational being, undergo any change from the development of an intelligent power; besides which, each temperament runs through a whole species (except in the horse, the dog, and the monkey tribe), while man exhibits each of the two,* and a mixture of both, from intermarriages.

In general, the best, because the most moderate characters, result from the union of families differently constituted. When both the parents are phlegmatic, the progeny is generally dull, and destitute of natural talent; when both are of the opposite character, the offspring frequently surpasses them in vehemence of feeling. Most usually, the effect produced by the union of opposite characters is a difference of temperaments among brothers and sisters.—In this case, the physical attributes of one temperament are *sometimes* combined with the mental attributes of the others, both shewing a milder cast of character.

The same temperament may be traced through a whole nation, when it is not of a mixed origin. Generally speaking, we find that the inhabitants of warm latitudes are of the ardent temperament, and those of cold and damp climates, phlegmatic. But the nature of the temperament cannot be entirely attributable to climate; for I have observed that families preserve their own distinguishing characteristics through succeeding generations in every climate.—Thus the northern and southern Irish, who are of a different race, still shew a great difference of character, though inhabiting the same latitude: the first are of Scotch origin, and the latter are supposed to be a colony from Spain, which their warmth of temper renders, I think, not improbable.† The English, who derive their origin from several nations, perhaps exhibit a greater mixture of temperaments and variety of character, than any nation under the sun, but the phlegmatic certainly predominates. The ancient Britons were of the ardent temperament (as the Welsh temper can testify), and also the Normans; but the Saxons and Danes were of the opposite constitution. The Spaniards, Portuguese, Italians, and Greeks,‡ are of the ardent temperament; the Germans, Swedes, and pre-eminently the Dutch, are phlegmatic.

PARALLEL BETWEEN THE ARDENT AND PHLEGMATIC TEMPERAMENTS.

The advantages and disadvantages of the two temperaments seem to be nearly balanced. The ardent

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* Might we not account for this, by supposing that Adam and Eve were of different temperaments? In this case, some of their progeny might inherit the one, and some the other.

† The Scotch phlegm, however, is confined to the Lowlanders—the Highlanders are of the ardent temperament.

‡ The ancient Thebans were phlegmatics.

temperament gives more facility to the attainment of intellectual superiority, and the phlegmatic to the acquisition of moral qualification, because the *strength* of the nervous action gives vigour to the mental operations, and waywardness to the feelings, and its *feebleness* produces the opposite effect. The intellect never blazes forth with such splendour in the phlegmatic as in the ardent temperament; but the reason gives a more steady light, by which the mind is better enabled to avoid the errors resulting from prejudice and from enthusiasm. Indeed, the weakest mind may pursue its course in the path of virtue and truth with more security in this temperament, by the help of the humility, meekness, and resignation, which are its characteristic virtues. Perhaps we might, at a first view, be tempted to give the preference to the phlegmatic constitution from these considerations; and so we ought, if the other was compelled to retain its imperfections; but this is far from being the case, and as merit is proportioned to exertion, the balance even preponderates in favour of the ardent temperament, when its powers are directed to the correction of constitutional defects: the task of the phlegmatic character being more easy, it is more responsible, and its faults are less pardonable. The latter labours under this disadvantage, that although it may be equalled by the ardent character in moral perfection, it cannot in return equal it in intellectual attainments, even supposing the intellect and the exertions to be as strong, for the best workman can never execute so good a work with blunt tools, as one of the same ability with excellent instruments. However, when the physical constitution is sound, and the intellect powerful, the deficiency of the nervous action is sometimes too trifling to produce any very sensible effect; it is disease that displays the difference in a striking manner, by increasing the irritability of one constitution, and the languor of the other.

COMPARATIVE HAPPINESS.

There is one point, however, in which the phlegmatic individual has the decided superiority, that is, in the possession of *this* world's happiness. My assertion will, I think, easily admit of proof. When pleasure and pain are felt keenly, the portion of suffering must exceed that of enjoyment, because we are most liable to physical and moral pain, not only from the present constitution of this world, but from our own perverseness and want of judgment. Again, every rational mind will acknowledge that violent and tumultuous sensations, even of the pleasurable kind, do not produce true happiness, and that the excess of joy is even painful. The calmness and habitual serenity of the phlegmatic character (supposing it to be well disposed), is far preferable to the strong emotions produced by the gratification of the most ardent wishes; and who does not perceive that the more eager are the wishes, and the more exquisite the satisfaction, the greater is the dread of losing the blessing we possess, and of seeing what no human power can retain escape in a moment from our grasp? The moderate and reasonable enjoyment of what is granted to us, and an habitual preparation for the hour of trial, when it may be withdrawn, can hardly be expected from a mind possessing acute sensibility; while the well-regulated phlegmatic character enjoys a peace and tranquillity which is, in a great measure, independent of external circumstances, because it arises from the habitual subjection of the feelings to the government of the reason.

CONCLUSION.

Moral Inference.—The conclusion which we may draw from this general view of the human character is, that our advantage is in proportion to the preponderance of the intellectual power over the moral and physical sensations, and that all our exertions must be directed to the acquisition of this spiritual dominion. Man seems to be a compound being—not merely a being possessing a body and soul, but one in whose mind two different natures are united, viz. an animal and an intellectual nature. We possess many feelings and inclinations in common with the animal creation; and in proportion as the immaterial principle gives way and is governed by the sensations, or rules and directs them, we descend towards the brutish, or rise towards the angelic nature. The pride of man disclaims all relationship with animals; but as we are too apt to imitate them by following the impulse of our feelings, without consulting our reason, it is better that we should be aware of the connexion, that we may make it as distant as possible. It is not by acknowledging that we *have* animal qualities, but by weakly yielding to their influence, that we degrade ourselves; and it is when we consider our natural disposition as a sufficient excuse for the violence of our conduct, that we forget our true rank, and do injustice to the powers of the will and the understanding. The strength of the will is usually proportioned to the violence of the character; for we find that those who have strong passions can show a determined will in overcoming every obstacle to indulge them. Why not employ this resolute disposition in *opposing* them? But unfortunately, the motives placed in the opposite scale are seldom sufficiently weighty to overbalance the violence of the sensations. Here we may see the utility of religious feeling, which is always sufficient if it is *sincere:* while prudential considerations, and even the strongest earthly affections, are too weak to stem the torrent of the passions. The duty of self-control is imperious and indispensable; brutes alone are incapable of governing themselves; but their passions and inclinations are regulated by instinct, and are given for the express purpose of directing their actions; whereas ours are chiefly intended as a means of trial and temptation in our course of moral discipline through a life of probation. The soul of man is not formed for a state of vile subjection to the moral and physical sensations. Let us therefore use to their utmost extent the noble privileges that give us an elevated rank in the creation, and that enable us to trample upon our animal nature, and to qualify ourselves for our future glorious destination.

MISCELLANEOUS.

AERIAL EXPERIMENTS.

During the preparatory arrangement for my 38th ascent, made from Gettysburg on the 10th inst., it was suggested by Professor Jacobs, of Pennsylvania College, in company with several other scientific gentlemen, to make some experiments upon the spiral ascent of the small Balloons that were sent off as pilots. Having often noticed that they revolved in a direction opposite to the revolutions of the hands of a clock, lying with its face upwards, Professor Jacobs proposed that the remaining two pilots should be started with a rotary motion opposite to that which they assumed when let off uninfluenced. Accordingly they started with considerable impetus in that way, but invariably, that motion subsided, and the first mentioned took effect, and continued as far as they could be seen, which was until they passed into the clouds. The large Balloon also revolved in the same way; and in pursuing these experiments, by throwing down, when above the

clouds, substances of different kinds and shape, they all fell with a rotary motion from right to left in front, the same as the Balloon. The atmosphere at the time of starting—12 minutes before 4 o'clock,—was perfectly calm and the heavens were completely partitioned from the earth, by a thin layer of clouds. In 15 minutes from the moment I left the earth the Balloon penetrated the clouds. The height from the earth to the clouds was 3900 feet thick. The air, as I ascended, became slightly colder, until entering the clouds, when it became somewhat warmer, and when emerging from the upper side, the sun shed his rays most powerfully upon the Balloon and my body. The expansion of the gas from this point caused an accelerated ascent.

The phenomenon of refracted light was beautifully displayed on the clouds beneath when viewed from a distance above them, and my attention was particularly drawn to its operations. It appeared on this occasion, that the cause assigned to its production on a former voyage, was not altogether correct, as there was no profuse escape of gas at this time, and none except what escaped by diffusion.

The shadow of the Balloon was well defined on the clouds, and the halo formed of the prismatic colors, was brilliant; the lower point of the shadow was a little above the centre of the halo, and in the centre of the halo was a dark spot, which appeared to be the shadow of the car.

There also appeared a fainter shadow, a little below the centre downwards, as represented in the wood cut, which at times was nearly as well defined as the upper, but in general very imperfect, sometimes resolving itself into a mere line, then suddenly flashing outwards again, much in this respect like the waving motion of the Aurora-Borealis; this motion I discovered was caused by different degrees of thickness of the clouds as they passed along. The halo and shadows varied in size, as the Balloon ascended or descended whilst sailing above the clouds. What appeared most remarkable to me, was the appearance of this Phenomenon after the Balloon had descended between the clouds and the earth. The clouds had in places dispersed, and whenever the Balloon fell into the sun's rays, the prismatic colors were displayed on the green grass, and over the tree tops, but not in regular circles, at least not so in appearance. It appeared more like the light of a distant fire, when reflected in the atmosphere. During the early part of the ascension, when several thousand feet from the earth, there appeared a magnificent sight towards the west. A large space of the mountainous region was receiving a flood of light from the sun, which gave it a peculiar lustre, such as I have never yet seen, though it has often happened that the sun was only shining in spots: the country all round lay in deep shadow, giving it a deep contrast. On entering the clouds, I discovered them to have a more milky appearance than is usually the case. It was also a general remark by the spectators on my return, that the Balloon "looked white," as it passed deeper into the clouds until it was entirely lost to sight. After remaining in the atmosphere eight minutes less than an hour, I descended through the clouds and found that I was within a mile of the starting point, when I finally reached terra firma 2½ miles from the place of departure.

These interesting facts are given with as much precision as sketching and noting the exact appearances could render it. The height of the clouds was taken by Professor Jacobs, and the result of these experiments and observations was promptly submitted to his investigation.

In conclusion I would remark, that there are various causes by which the appearance of this Phenomenon may be effected. First, the medium round the Balloon may be rarified by the action of the sun on the black silk. Second, the diffusion of gases whilst the Balloon was almost stationary. Third, the peculiar state of the clouds at the time. Fourth, the prismatic colours may have been formed on the opposite side of the clouds from me, as the stratum was thin, and at places I could faintly see the earth through it, as it had very much that appearance, from the fact that the colors were seen on the earth. These interesting details are thus submitted to the public's philosophic consideration, by your obedient servant,

JOHN WISE.

Lancaster, September 14, 1842.

Intelligencer and Journal.

INFLUENCE OF ELECTRICITY.

Extracts from Dr. Madden's Infirmities of Genius.

In the south of France, there are whole vine-yards in which numerous electrical conductors are attached to the plants for the purpose of increasing the progress of vegetation, & of invigorating the vines. In the same manner does electricity act upon the animal body, the circulation being quickened by its stimulus, and the fluid driven through the small capillary vessels with increased velocity.

Some recent discoveries of Dr. Wilson Philip have proved that the circulation in the smaller capillary tubes may continue some hours after apparent death, and that their current in life is not synchronous with the motions of the heart, so that the ordinary theory of the circulation of the blood is inadequate to its explanation. An observation of Brydone however throws no little light npon the subject. "If you cause water," he says "to trickle through a small capillary tube, the moment you electrify the tube the fluid runs in a full stream. ☞ Electricity," he adds, "must be considered the great vivifying principle of Nature, by which she carries on most of her operations. It is the most subtle and active of all fluids. *It is a kind of soul which pervades and quickens every part of nature.*"

When an equal quantity of electricity is diffused through the air and over the face of the earth every thing is calm and quiet, but if by accident one part of matter has acquired a greater share than another the most dreadful consequences ensue till the equilibrium is restored; nature is convulsed with earthquakes, whirlwinds, lightnings, meteoric projections, &c. But it is not the elements alone that are thrown into disorder by these electrical changes: every thing that is organic is effected by them. The vigour of plants is increased or diminished, as also the nervous energy which has presidency over animal functions. Especially is this observable in persons of delicate health. They are ever and anon exalted or depressed according to the direction of the wind. Who has ever experienced the effects of the Sirocco of the south of Europe, the poisonous Kamsin of the east, or even the summer south-east wind of our own climate (England) without feelings of indescribable lassitude, not to be accounted for by any alterations of temperature, but obviously owing to the electrical changes superinduced. During the prevalence of these winds the atmosphere is almost altogether deprived of electricity, and the nervous system, simultaneously, is deprived of its vigour. In damp weather, likewise, when electricity is absorbed rapidly by the surrounding moisture, every invalid is aware how unaccountably dejected his spirits become and how feebly the various func-

tions of the body are performed, especially those of the digestive organs. This state of morbid irritability in the whole frame continues till the north or west wind "awakes," as Brydone has well expressed it, "the activity of the animating power of electricity which soon restores energy and enlivens all nature."

In very frosty weather on the other hand, when the atmosphere is surcharged with electricity, there is a corresponding elevation of the spirits which sometimes amount to an almost painful state of excitement. In our temperate climate, perhaps, this phenomenon is seldom witnessed, but to a certain degree the exhilarating effect of very cold dry weather is evident enough.

Rosseau has eloquently described the extraordinary elasticity of spirits which he experienced in ascending some of the higher regions of the Alps.

The painful effects arising from too much electricity in the air were experienced by Professor Saussure and his companion. While ascending the Alps they were caught in the midst of thunder clouds, and were astonished to find their bodies filled with electricity, and every part of them so saturated that sparks were emitted with a crackling noise, accompanied by the same painful sensations which are felt by those who are electrified by art.

Larry, in his memoirs of the Russian campaign, mentions his having seen similar effects: on one occasion, he says, when the cold was excessive, the manes of the horses were found electrified in a manner similar to that described by Saussure.

Natural electricity has hitherto been little investigated except in the case of its evident and powerful concentration in the atmosphere. Sir Humphrey Davy says of it—"its slow and silent operations in every part of the surface of the globe will probably be found more immediately and importantly connected with the order and economy of nature, and investigation on this subject can hardly fail to enlighten our philosophical systems of the earth, and may possibly place new powers within our reach."

Priestly sums up his opinions on this subject in these emphatic terms:—"Electricity seems to be an inlet into the internal structures of bodies on which all their sensible properties depend; by pursuing therefore this new light the bounds of natural science may possibly be extended beyond what we can now form any idea of; new worlds may be opened to our view, and the glory of the great Newton himself may be eclipsed by a new set of philosophers in quite a new field of speculation."

Dr. Paris, in his biography of Sir Humphrey Davy says, "he (Sir Humphrey) supposed the heat of the animal frame to be engendered by electricity; taking it furthermore, to be identical with the nervous fluid—*sensations being* in his view *motions of the nervous ether exciting medullary substance of the nerves and brain.*"

THE PAST AGES.

We are struck with amazement at the wonderful remains of former times. In every quarter of the globe we find some interesting memorial of by-gone ages. The spirit of investigation has opened the entombed cities of Herculaneum and Pompeii, and presented to our view the people and their mode of living—with their advance in the arts and sciences, at their era of existence. In the pyramids, we trace a people that have long since left the stage of existence—but have given us strong indications of their matchless achievements. Nature, too, hath opened up her great volume for us to see the relics of a race of animals that have written their history by their bones. The immense amount of the mere remains of the extinct races, that are to be found on the land, and on the margin of the sea, proclaims the might of a God who called every thing into existence by the word of his power. The wonderful amount of mammoth skeletons that have been found is truly astonishing. Henderstrom, in his journal, says that the bones of this animal may not inaptly be called the peculiar produce of Siberia and the Northern Islands. He observed, that the farther he proceeded towards the north, the smaller in size, but the more abundant in quantity, became these relics of a former world. In the Lachow Islands it is a rare circumstance to discover a mammoth's tooth weighing more than 3 poods, equal to 108 lbs. English; whereas, in the interior Siberia it is not an uncommon thing to meet with one of four times that weight. On the other hand, the immense quantities of these bones found in the Siberian Islands, form one of the most remarkable phenomena connected with these singular remains.

In the words of Sannichow, one of Henderstrom's companions, "the first of the Lachow Islands is little more than one mass of mammoth bones;" and though for upwards of 80 years, the Siberian traders have been bringing over annually large cargoes of them, there appears as yet no sensible diminution in the apparently inexhaustible store. The teeth in these islands are also much whiter and more fresh than those of the continent. The most valuable are met with on a low sand bank on the western coast; and there after a long prevalence of easterly winds, the sea recedes, a fresh supply of mammoth's bones is always found." Henderstrom infers, from this, that large quantities must exist at the bottom of the ocean.

DURATION OF SLEEP.

Of the duration of sleep, the period varies in various men. John Hunter, Frederick of Prussia, Napoleon and other great men, slept but little. The Duke of Wellington is also a little sleeper. Boerhave says, that on one occasion, his mind being much engaged, he could not sleep for six weeks. He probably meant to write "not soundly." He added the case of a student, who adopted the strange theory that the natural condition of man was sleep; and to test the truth of the doctrine, slept eighteen hours of the twenty-four; and as might be expected died of apoplexy. The elder Descrozilles seems to have slept two hours out of the twenty-four.—*Ann de Chimie.* However the number of hours passed in sleep varies from 6 to 12. The indolent, and those whose avocations or fortunes doom them to inert life, sleep many more hours than are necessary; but eight or nine hours would seem to be about the fair proportion which every man ought to take who values his health, or expects his intellects to be in a fit state to enjoy life.

Habit, climate, constitution, calling, age, modify, however, the duration. Infancy requires much sleep; more than is generally allotted to it in England; and manhood is the medium between the wants of youth and the necessities of age. Some old people as we have previously remarked, sleep much—Parr slumbered away the greater part of his time, and De Moivre when eighty-three years of age, slept twenty hours of the four and twenty. But these are exceptions of this law of nature, and Rickerand affirms that old men have short sleep, light, and broken; as if, says Grimaud, according to Stabl's notions, children foresaw that, in the long career before them there was time enough for the performing at leisure all the acts of life; while old men,

near their end, feel the necessity of hurrying the enjoyment of good, already about to escape. Dr Ellis-ton writes—"Old people sleep lightly and frequently; and altogether but little unless lethargic disease come upon them, which is very common. I heard Baxter, the coachmaker, declare that he never took more than three hours' sleep, during the most active period of his life. The celebrated General Elliot never slept more than four hours out of the four and twenty, and his food consisted wholly of bread, water and vegetables."—*Dr. Burn's Anatomy of Sleep.*

EXERCISE.

Many people look upon the necessity man is under of earning his bread by labour as a curse. But it is evident from the structure of the body, that exercise is not less necessary than food for the preservation of health; those who labour are not only the most healthy, but generally the most happy part of mankind. This is peculiarly the case with those who live by the culture of the ground. The great increase of inhabitants in infant colonies, and the longevity of such as follow agriculture everywhere, evidently prove it to be the most healthy as well as the most useful employment.

The love of activity shows itself very early in man. So strong is the principle, that a healthy youth cannot be restrained from activity. Our love of motion is surely a strong proof of its utility. It seems to be a law throughout the whole animal creation that no creature, without exercise, should enjoy health, or be able to find subsistence.

Inactivity never fails to produce a universal relaxation of the solids, which dispose the body to innumerable diseases. When the solids are relaxed, neither the digestion nor the secretions can be duly performed. How can persons who loll all day on easy chairs, and sleep all night on beds of down, fail to be relaxed, nor do those much mend the matter who never stir abroad but in a coach.

Glandular obstructions generally proceed from inactivity. These are the most obstinate maladies. So long as the liver, kidneys and other glands, duly perform their functions, health is seldom much impaired, but when they fail it is difficult to be restored.

Weak nerves are also the constant companions of inactivity. We seldom hear the laborious complain of weak nerves. This plainly points out the sources from which nervous diseases generally originate, and the means by which they may be prevented.

It is absolutely impossible to enjoy health, where the perspiration is retained in the body—it vitiates the humours, and occasions the gout, rheumatism, &c.

No piece of indolence injures the health more than the custom of lying in bed too long in the morning; the morning is undoubtedly the best time for exercise, as the air braces and strengthens the nerves. Custom soon renders early rising agreeable, and nothing contributes more to the preservation of health.

Every person should lay themselves under some sort of necessity to take exercise. Indolence, like other vices, when indulged, gains ground, and at length becomes agreeable. Hence those who were fond of exercise in the early part of life, become quite averse to it afterwards. This is often the case with gouty and hypochondriac persons, and frequently render their diseases so difficult to cure.

Indolence not only occasions diseases and renders men useless to society, but promotes all manner of vice. The mind, if not engaged in some useful pursuit, is constantly in quest of some ideal pleasures. From these sources proceed most of the miseries of mankind. Certainly man was never intended to be idle. Inactivity frustrates the very design of his creation, whereas an active life is the best and greatest preservative of health.—*Oracle of Health.*

Music Physiologically Considered.—The physical benefits of the study of music, especially vocal music, are not less striking than the moral and intellectual advantages we have mentioned. Exercise gives vigor, and there is no part of the human system which requires more attention for the acquisition of a desirable degree of strength than the vocal organs, which are so fatally deranged by exposure in our rough climate. This is no chimera. The personal experience of many a singer may be appealed to, in confirmation of our position; and if there be one thing which is likely to check the seemingly peculiar tendency to consumption in our population, it is the early and systematic culture of the vocal organs in singing.

"A fact," says an American physician, "has been suggested to me by my profession, which is that the exercise of the organs of the breast by singing contributes very much to defend them from those diseases to which the climate and other causes expose them."

A musical writer in England, after quoting this remark says, "the Music Master of our Academy has furnished me with an observation still more in favor of this opinion. He informs me that he had known several persons strongly disposed to consumption, restored to health by the exercise of the lungs in singing. But why cite medical or other authorities on a point so plain? it appears self-evident that exercises in vocal music, when not carried to an unreasonable excess, must expand the chest, and thereby strengthen the lungs and vital organs."

The amount of exercise derived from the practice of singing, is much greater than would be imagined by those not versed in it; and the fatigue incident to prolonged exertion in singing, is as positive as that which follows sawing wood, or riding on horseback. During a residence of nine or ten months in Germany some years ago, we were much struck with the fact, that diseases of the lungs of all sorts were far less common there than with us. Is there any difference in the situation or habits of the people, to which this result may be ascribed with so much probability, as the different customs ef the two nations with regard to vocal music? In Germany, every body sings; in America, nobody. In Germany it is an art honored and loved; in America it is treated with indifference.

Singular Spontaneous Explosion of Rocks.—The Ogdensburg (N. Y.) Times mentions a singular occurrence which happened at Norfolk, in that State, on the 15th ult. and which has produced much speculation in the village. An individual named Cochran, while walking in the wood at the latter place, had his attention excited by a cracking sound, which was instantly succeeded by a tremulous motion, and a rising of the earth just before him. Alarmed at the phenomenon, and expecting a shock of an earthquake, he precipitately turned to retreat to his house, when at that moment an explosion occurred, the intonation of which was as ponderous as that of a smart blast of rocks by powder—rending the rock asunder, and throwing out 30 or 40 pounds of fragments. The rock appeared perfectly sound, and is a continuous lime rock from the bank of Racket river, and distant therefrom about 30 rods; and at this place formed the base of the road, and covered with little or no earth. The phenomenon, it is said, is attested by credible witnesses.—*Richmond (Va.) Aurora.*

THE

MAGNET.

VOL. I. NEW YORK, FEBRUARY, 1843. NO. 9.

ELECTRICITY.

For the Magnet.

EXPERIMENTS IN ANIMAL ELECTRICITY.

Dear Sir,—I notice in the second number of the Magnet, to which I am a subscriber, a letter from Professor Henry, of Princeton, N.J., in reply to one of yours, making inquiry in reference to Animal Electricity. As I have chanced to make what, perhaps, may be called a discovery with regard to the evolution of electricity from the human body, the following account of it will scarcely fail to be acceptable. —A knowledge of the phenomena below described, may possibly aid you, somewhat, in multiplying your magnificent discoveries in human magnetism. At all events, an explanation of the sources of the appearances which I have observed, will be more likely to come from yourself, than from any less experienced operator.

What I have ascertained is this—viz. That a comparatively large amount of electricity can be developed in *all* persons, I may say, of both sexes and all ages, by muscular contraction in a certain position, and *only* in such a position, together with a proper dryness of the surrounding air. If these conditions are not observed, no electric manifestation occurs.

In the 5th volume of Tilloch's Magazine (old series) a copy of which is in the Franklin Library at Philadelphia, there is an article on animal electricity with original experiments, by a Mr. Hemmer, of the Electoral Academy of Sciences at Manheim. From these experiments, which were made in 1786 on thirty persons, of different age and sex, and amounted to upwards of 2400 in number, Mr. Hemmer came to the following conclusions :—That electricity is common to all men; that it is sometimes negative, oftener positive, and sometimes wanting; that it is produced without friction of the clothes, and is evolved from the naked body; that its quality is altered by certain circumstances, and changed from the one to the other kind by sudden and violent motion—from positive to negative by cold, or lessened in amount by it; that continued mental exertion increased the positive electricity, &c. &c. If I am not very much mistaken, it was stated in the account that Hemmer employed an electrical condenser. If he was obliged to use this instrument, it proves, that the quantity he was able to obtain at any time, must have been exceedingly small. His great number of experiments, also, shows that this was most probably the case.—They must, also, have required no little care in their performance, or have been somewhat difficult to repeat, or he would not have confined himself to thirty persons, in performing 2422 experiments. The results, however, which I have obtained, are so striking, and so quickly and easily performed, that no doubt can be entertained, both that the source of the electricity is the human body, and that with, perhaps, a few exceptions, it can be developed in every individual. I was led to the discovery in the following manner, in January, 1841.

I had several times attempted, with a common gold leaf electrometer, to verify the results of Mr. Hemmer's experiments, by standing insulated for a length of time, with, and without, clothing, and then touching the electrometer, but I never found any indications of electricity. I at length thought I would try, whether any was evolved from a limb when in that state of numbness called "asleep." My electrometer was on the mantel-piece; I sat before the fire on a chair, with my arm over the back, so that the nerves were pressed upon. When it had become numb, I rose hastily, and applied my finger to the cover of the instrument. The gold leaves flew instantly to the sides of the glass, and I thought my theory fully verified. I was mistaken as to the cause, however, for on rising again, and applying the other hand, which was in its natural state, the same phenomenon occurred. I soon found, that this depended on my rising from a sitting posture. I then tried this with other persons—some succeeded at the first trial, others failed in the first or second attempt, but succeeded as soon as they placed themselves in a proper position. I have given this experiment a fair trial with about thirty persons of different age and sex, in different rooms, and with complete success. A little girl of seven years, has shown very strong electric powers To cause a movement of the gold leaf of half an inch from the perpendicular, is but a weak manifestation. In a properly warmed apartment, I can, by partially rising from a chair, and sitting down again alternately, cause a continual and violent vibration of the gold leaf to and from the side of the glass: there is often force enough to tear the leaf, causing it also to adhere to the side of the glass. It is not necessary for me even to *touch* the cover of the instrument—nearly as striking results will follow if I but bring my hand *near* the cover—say within an inch or more.

Before mentioning more particularly the conditions to be attended to for a successful trial of the experiment, I must state, that this evolution of electricity is entirely independent of any fric ion between the clothes and skin. That, so far from this being the case, not the smallest appreciable quantity can be produced by any friction that can be made by the clothes against the skin, though the body and limbs be moved slowly or quickly in every direction. I have, also, when undressed and insulated, with one

hand on the electrometer, rubbed the surface of the body with flannel or cotton, without causing the slightest movement of the gold leaf.

The conditions spoken of are as follows:—First, a proper dryness of the air,—hence a situation in front of a good fire is preferable. As very cold air is generally very dry, also, the experiment has succeeded at an open window, when the thermometer stood at 38°; but as here the air soon derived moisture from the room or the body, the electricity of the latter was so soon carried off, that it was gone before I could touch the electrometer twice, after rising from the chair. But, before the fire, I could count slowly forty or fifty, after rising, before I had parted with the electricity evolved by the act of rising. It was for want of attention to having the air dry, and to my overlooking a cause of moisture, that I was, at first, in doubt whether the electricity did in fact arise from the body without the aid of clothing. I had succeeded once or twice, perfectly, I thought, in affecting the electrometer, when trying the experiment before the fire, undressed; but I afterwards failed continually, until I ascertained that by walking a few moments in the cool side of the room, and then trying the experiment before the fire—it succeeded completely. I repeated this often, and always with the same result. The cause of my former failure was owing to the increased evaporation of moisture from the skin, produced by the heat of the fire; by cooling the surface, and then trying the experiment before the fire, where the air was dry, I could affect the electrometer each time I rose and sat, until the heat had produced a too copious exhalation from the skin to allow the electricity to remain on the body. For the same reason, I have very rarely been able to affect the electrometer after returning from a walk, the cutaneous exhalation carrying off the electric fluid as fast as it was formed —Secondly, The position requisite. This is as follows: place the electrometer over the mantel-piece, over a good fire. Take a common sized chair, of such a height that the feet resting on the floor, the thighs shall be horizontal. Sit toward the front edge of the chair, and lean back, so as to have the trunk of the body quite relaxed; then rise quickly, and touch the cover of the electrometer. The leaf or leaves will scarcely fail to indicate the presence of electricity. If the first trial should fail, it will be owing to the non-observance of some of the above mentioned conditions. A second or third attempt *must* succeed. The electrometer may also be placed on a table before the fire; the experimenter, seated as described on a chair near it, may place his hand on the cover, and then, after leaning back, he should lean a little forwards, and rise quickly, or but partially assume the erect position. At the instant of rising, and very often at that of sitting again, the electrometer will indicate a large amount of electricity. I have charged a jar with as much as could be detected by the instrument, by thus alternately rising and sitting. By the application of the jar, however, the leaf has never moved more than half an inch, while, by keeping the finger on the electrometer while I thus rose and sat, I could, as before stated, cause a continual flight of the leaf to and fro through an inch or more. I have hitherto found my own electricity positive, and I have a suspicion that the electricity is different according as I rise up or sit down. This shall be decided in future.

It is indispensable, that the chair be neither too high nor too low. If the chair with which I succeed when in its proper position, be turned on its side, making it lower, and I then sit down and rise, the electrometer is not affected. Neither have I succeeded by rising from a rocking chair. At the suggestion of a friend, the effect of sitting upon pillows as upon non-conductors, was tried, and it was found that, insulation aside, the *yielding* nature of the articles diminishes the indication of electricity. If the chair be placed upon pillows, and also the feet, or if the experimenter sit on a pillow placed in the seat, or against the back of the chair, the effects on the electrometer are irregular, or for the most part small. Any position, in short, which does not call into action the proper muscles, or impedes their complete action, entirely prevents or lessens the development of electricity. Lowering the body, so that it rests upon the heels, and then rising and touching the instrument, will be as void of influence on the leaf, as movement from any other position than the one described. Complete insulation, by placing the legs of the chair in glass tumblers, and the feet on pillows, seems to increase the electricity.

Such, then, are the results of my experiments, which I believe are entirely novel; for, although it is generally known that electricity is, nay, *must* be, evolved both in animals and vegetables by the vital processes, especially by the formation of carbonic acid gas, and may be detected under ordinary circumstances by delicate instruments; and though Prevost and Dumas, of Geneva, think that they have proved electricity to be produced by muscular contraction, and Edwards has shown that bodies which conduct electricity conduct the nervous power also, and vice versa (see his work on "Influence of External Agents," &c., Appendix); yet, no one has, to my knowledge, ever yet observed the relation that exists between bodily motion in a certain direction, and the copious evolution of electricity. Upon the ultimate cause of this phenomenon, you are more able to throw light than myself. I will merely throw out the suggestion, that if, according to Dr. Buchanan, there be an electric organ in the brain, it must like all other organs have some portion of the body over which it presides. This organ (perhaps the spleen) may be influenced in such a manner by the muscular motion above described, as to excite the cerebral organ into a higher degree of activity, and thus produce the electric manifestation. If there be an organ in the brain by which the mind takes cognizance of the heat of the body, there should certainly be one adapted to its electric condition, for that large quantities of electricity are generated within the animal economy cannot admit of a doubt to any one who is aware of the circumstances under which electricity is developed. But chemical action is a chief source of electricity as well as of animal heat. A French chemist, Pouillet, states that all gases in combining with other elements, give out a certain amount of electricity. He illustrates this proposition by the case of *carbon*, 15 grains of which, in becoming carbonic acid gas by union with oxygen, give out enough electricity to charge a common sized Leyden jar; and hence, that by a surface of vegetation 100 metres (about 300 feet) square, more electricity is produced in a day than would charge the strongest electrical battery. By this estimate, how much electricity would be formed in the body? Let us see:—it is estimated that 17,811 grains of carbonic acid escape from the lungs in 24 hours; then, by calculation, enough electricity would be generated by the formation of this gas, to charge 333 common sized Leyden jars, which average two square feet each of coated glass. If we assume but half of this, we shall still have a very large quantity of electricity, formed by the union of oxygen with carbon in the various tissues of the body traversed by good arterialised blood. Now, what becomes of all this electricity? None can be detected in the breath, or escaping in any other manner from the body, except in the peculiar manner that has been described. The only conclusion we can come to, is the follow-

ing (one which I advocated in a Thesis on the "Nervous System," written for the degree of M.D. in the University of Pennsylvania in 1840, and which Liebig, I see, also maintains in his work on Organic Chemistry), viz. That the electricity (vital force Liebig calls it) which is generated by the processes of nutrition decomposition, i.e. by union of carbon with oxygen and other elements in the tissues of the body, is conducted away by the nerves to the nervous centres, where it may undergo various modifications, and thence pass along the motor or centrifugal nerves to the muscles, or wherever nervous energy is required.

Before I close I must not omit to mention, that besides the peculiar motion above described, by which electricity is evolved, there has been noticed *one* other:—this consists in a sudden drawing of the *arm* and bent elbow backwards, then forwards, and touching the electrometer. It was manifested by accident by a gentleman to whom, with others, I was showing the other experiment. He did it afterwards several times, and with success; I also succeeded two or three times, but have always since failed. I am not certain that it could be done without clothing.—As electricity is produced by some action which takes place when the *thighs* are moved on the trunk in a particular manner, it is not improbable that a similar action occurs when the *arms* are moved on the trunk also; for it is well known, or ought to be, that there exists a remarkable sympathy between corresponding parts of the upper and lower extremities; as between the knee and elbow, the thigh and humerus, the fingers and toes, and leg and fore arm—and between these and the surface of the trunk, especially the skin of the abdomen around the umbilicus, and, also, the surface of the chest. I may, perhaps, in a future paper, send you some curious observations which I have made on this subject. The electric organ in the brain may thus have two portions of the spine, or two organs of the trunk, over which it presides—one in the lumbar spine, or in the abdomen, and one in the cervical spine, or in the chest. Whatever may be the use of such organs, may not their existence aid us in explaining the phenomena of stretching and yawning, after sleep following fatigue? The vital force, or electricity, or magnetism, which is restored during sleep, we may with probability suppose excites the electric organs by its accumulation in them: that this excitation is identical with the desire to stretch or yawn, and that during the gratification of this desire the accumulated electric fluid is sent rapidly into the muscles from its three central reservoirs, the brain, the chest or cervical spine, the abdomen or lumbar spine. Into the muscles of the face, causing yawning; into the muscles of the arms and chest, and into the muscles of the abdomen and lower extremities, causing the extension of all these parts.

Yours with respect,

WM. H. MULLER, M.D.

Pittsburgh, Dec. 2, 1842.

PATHETOLOGY.

For the Magnet.

REMARKABLE PHENOMENA.

Mr. Sunderland,—Since I have been in Kentucky, my exertions in promoting a knowledge of Human Magnetism have created considerable excitement, and developed many singular facts. Among the rest, there is one of so remarkable a character, that I am induced to think an account of it in the Magnet might interest your readers, as it may afford a very salutary caution to those who are attempting experiments, for the sake of amusement or curiosity, without being acquainted with one of the first principles, or laws, that govern these wonderful phenomena.

During a visit to Danville, in this state, a few months ago, I magnetised successfully some half a dozen persons, and produced a general conviction of the truth of this subject, in the minds of almost all its citizens. Several persons were relieved of nervous headaches and other afflictions; and even the deaf and dumb yielded to its influence. Two mutes, in the Asylum, were magnetised, and exhibited many of the phenomena developed upon others. They were susceptible of taste and feeling through the operator; exhibited some of the phenomena in phreno-magnetism; and communicated with us by means of their usual signs. As the defect in the sense of hearing was organic, of course, it did not relieve them from this affliction.

Among others, a lad, the brother of Dr. Van Camp, was thrown into the magnetic sleep, and became very susceptible of the influence of this secret agent. He was magnetised several times by myself, without any injury either to his mental or physical powers. The phenomena exhibited by him were the more satisfactory, inasmuch as he was wholly ignorant of phrenology; and yet, the different organs in his brain were excited with great success. He was made to laugh, sing, pray, exhibit anger, affection, pride, vanity, and many other emotions of the mind, by touching successively the different organs by which these feelings are manifested.

I may here be permitted to mention, what is, probably, a new discovery in this interesting branch of physiological science. When this lad was in the magnetic state, it was found that a few passes made over the temples, in a transverse direction from the organs of order, backwards, produced natural sleep. Whether there is an organ in this region of the brain that governs the phenomena of sleep, I am at a loss to conjecture: some of the facts that have fallen under my observation, certainly lead to such a conclusion. That there should be an organ of this description near the lower range of the perceptive faculties, seems to me not unreasonable. In sound sleep, the observing powers lie dormant, and remain chained in slumber by this "little regulator," till the organ of time, located near by, knocks for admission, and warns them to arouse from their inaction, and be "up and doing." It is only in partial sleep that we dream, and see visions of the material world, according as these faculties are prompted by the feelings and sentiments; and while the judgment sleeps they roam at large beyond the control of their "little keeper."

If such an organ exists, I think it is located just below the organ of Tune, and on the borders of Calculation. Its existence might enable us to account for the fact, that many persons can retire at night, and set the time in their own minds when to awake in the morning, without ever failing to wake at the very minute. I have tried the experiment on two or three others, besides the lad at Danville, with the same results. One of my subjects, as I pass my fingers over the organ, falls immediately into a natural sleep, and commences dreaming. In this state he gets up of his own accord, like a natural somnambulist, and walks about beyond my control; does not seem to hear me when I speak to him; and walks in the most difficult places with ease and safety. When I wish to restore him to the magnetic state, I am obliged to reverse the passes, and again he is under my influence, the same as before. It is quite remark-

able, too, that I cannot wake him from this induced natural sleep without restoring him to the magnetic, and then employing the usual means. But a day or two since, I attempted an experiment upon a gentleman awake, who had never heard of the organ; and without informing him of its existence, I pressed on it about five or six minutes, and had him nearly snoring, when he roused himself up, and said that I was putting him to sleep. From these considerations, I am induced to think that such an organ exists.

But the object for which I commenced this communication, was to relate an incident that occurred with the lad already alluded to, of quite an alarming character, and one that will serve as a caution to persons unacquainted with the nature of this mysterious influence. After I left Danville, the lad was magnetised by any one that felt the inclination or curiosity, notwithstanding the warning I gave in my public lectures, of the danger of meddling with it without a knowledge of its principles, and of the human system in general. The consequence was, that in a short time he was very much injured. Persons were allowed to magnetise him on various occasions; and many of them, in exciting the different parts of his brain, handled his head very roughly. His mind became considerably affected, and disturbed him in his sleep; and to conclude the amount of injury done to him, he finally became DEAF AND DUMB.

Several days after this occurrence I happened to be in Danville again. I saw the lad, and he could neither hear nor speak. He used a slate, and communicated with me in writing. He seemed very much grieved about his affliction, and had already learned the deaf and dumb alphabet, and was beginning to learn the signs; he had not lost the memory of words, but his organs of hearing and speech had become paralysed. I persuaded him to sit down and let me magnetise him properly, and told him that it would probably cure him. He consented, and in a few minutes he was fast asleep. I spoke to him, but received no answer. I then made some passes, gently, over his head and ears; and afterwards, by means of this new organ already alluded to, threw him into this natural, or more properly this preternatural sleep. He sat for a few minutes, apparently dreaming, and then suddenly threw himself back in his chair, as if frightened. I immediately restored him to the magnetic state again, spoke to him, and he answered me promptly; but his voice and manner exhibited much agitation. I asked him what disturbed him, and he said he had just experienced a sudden ringing in his ears, as if some one had struck him a blow upon the side of his head. He then, while in this condition, gave an account of the cause of his deafness, stating that a physician of Lancaster, by the name of Dr. H. had enticed him from home, while his brother, Dr. Van Camp, was at Louisville, by false representations to the rest of the family, notwithstanding his brother had expressly forbidden that he should leave home or be magnetised in his absence; that Dr. H. magnetised him on several occasions for the amusement of his friends; and in experimenting in phreno-magnetism had injured his brain, by the rough manner with which he handled his head. He also attributed the injury, in some measure, to similar treatment from others, who had been in the habit of experimenting upon his brain.

This statement was confirmed by his brother, Dr. Van Camp; and without learning any thing more of importance from him, I waked the lad up. As he opened his eyes, he was perfectly astonished to see me in the room, asked me when I came to Danville, and talked with us freely as though nothing had happened. We soon discovered from his conversation, that he was perfectly unconscious of the time he had been in the deaf and dumb state; and upon asking him what day of the week it was, he named the very day on which he fell into this remarkable condition. He had no recollection of having been deaf and dumb, and was astonished at our inquiries. It was supposed by some, that he had been feigning all this for several days; but the circumstances were such that it was utterly impossible. A lad of his age would have betrayed himself; and besides this, his brother had whipped him very severely, from the same suspicion, without a noise from his lips, while the tears rolled down his cheeks at what must have seemed to him such cruelty. The state he had fallen into was not that of the ordinary magnetic sleep;—his natural sight remained the same, he took his food in the same manner as usual, and learned the signs and alphabet of the deaf and dumb with great facility. For some time previous to this event, he had been in a very disturbed state of mind; but since I restored his hearing and speech, he has enjoyed his former regularity of mind and body.

J. G. FORMAN.

Lexington, Kentucky, Dec. 1842.

For the Magnet.

TRANSLATIONS FROM PUYSEGUR.

Dear Sir,—Accompanying, I forward you some translations from Puysegur. Some of his ideas are opposed to present theory, yet they may assist us in our investigations of the science of human magnetism; and every thing which may be able to throw light upon the subject, must be valuable and interesting.

Yours respectfully,

JOHN KING, M.D.

New Bedford, Dec. 1842.

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* * * * Glass is, among unorganized bodies, one of those which exhibits in a high degree the phenomenon of electricity; or, in other words, it is more susceptible than any other body of *retaining in itself and at its surface the universal fluid in the greatest motion;* for this is what we ought to mean by the word *electricity.*

My mind has pondered much on this definition of electricity; for it is necessary to understand the sense of the words we use, before we can clearly explain our ideas. I will suppose, for instance, a glass tumbler filled with water, which we place quietly on a table: in this state there is *no motion*, or *no electricity* in the water; but if I stir it with my finger carefully, so that I spill none, a marked *motion* is thus produced in the fluid, which was not there previously. This motion is precisely what I understand by the word *electricity*; and the repose which ensues shortly after having removed my finger, corresponds to the electrical discharge, which is only a re-establishment of its equilibrium.

Let us carry the comparison still farther, and we will observe, that wherever any motion is produced, the same effect takes place as in the glass of water, and it is as transient. For example—I strike on a bell: now what takes place? Is not this an increased motion of the universal fluid, which the blow has determined in the interior of the metal, which motion manifests itself to our hearing by the sound, and to our feeling by the vibration of the bell? But gradually, as in the glass of water, the universal fluid resumes its ordinary tranquillity, which cannot be disturbed without deranging its general equilibrium; the noise and vibration cease, and the bell remains in the same condition as before it was struck.

We have yet a clearer explanation of electricity. While the bell was vibrating, we say that it was electrised; then, if we approach the hand as we would an electrical conductor, we do not elicit sparks, but

will experience a vibration at the end of the fingers, and the sound will entirely cease, when we discharge all the electricity in the bell by touching it, or in other words, when we have *re-established the equilibrium* in the universal fluid.

As I have given many examples in another place, I will dispense with more at present; but let us see what takes place in common electrical experiments. With a glass plate I determine an increase of motion in the universal fluid in the interior of my conductor; the larger my plate the more considerable is the motion produced, as the revolution which it makes extends to a greater distance around the conductor. Is not this effect absolutely the same as in the above example of the bell? When my conductor is thus charged, or, in other words, when it has received the amount of motion to which it is susceptible, if I approach my hand to it, the motion or vibration of it immediately ceases. It is true, that instead of a trembling at the end of the fingers, I feel a little commotion manifested by a spark; but this discharge, styled electricity, is nevertheless, as in the glass of water, a very simple result of the repose and equilibrium of the universal fluid.—Understanding the word *electricity* as I have explained it, let us return to glass.

If this body so easily manifests the phenomena of electricity, that is to say, if it is susceptible of retaining for so long a time the universal fluid in an increased motion on its surface, ought we not to conclude, that it has this faculty because even when in a state of rest, the fluid circulates more actively in it than in any other body? It is this last property which, I believe, constitutes the electrical glass body. The more motion there is in a body, the more electrical we may say it is, and consequently susceptible of exhibiting the phenomena of electricity. A man is more electrical than a tree, this more than a glass tube, this last more than a magnetised bar of iron, and so on.

Glass, notwithstanding its electrical properties (1), can never of itself have any influence over our nervous system. Its tone of motion not having the requisite acceleration, is not tenuous nor penetrating enough to assimilate with our organization; but as soon as it is magnetised, its electricity becomes in analogy with ours, and it then becomes a much better conductor of animal magnetism, as, owing to its own motion, it preserves the acceleration which it has received for a much longer time.

Next to glass, there is another substance which indicates a still greater force, or impulse of motion: these are the nerves. We know that a *plateau* which is formed of them, produces an electricity still more active than glass; this is, then, proof of an intrinsic motion of the universal fluid in the nerves, greater than in any other body, and also of the capability which they have of accumulating more of it at their surface. We may say, then, that the nerves are electrical, and that no other body in nature manifests this property to such a high degree. Then, if I am not mistaken, we have here the true key to the physical phenomena presented by animal magnetism.

The only effect that we have the power of producing, is that of accelerating motion in bodies, by striking them in any manner whatever. It is by blows and friction that we produce sound, that we obtain fire, from whence we derive flame, and consequently light. It is also by an acceleration of motion that we imitate two of the most wonderful phenomena of nature—that of the loadstone, and that of ærial electricity, known as *thunder* and *lightning*. The only kingdom in which we have not yet exercised our accelerating power, is the animal; where, in like manner, by an effect of motion on the nervous system, we can produce in organised beings a number of new and useful phenomena. But no: contented and satisfied with our superiority to all inanimate nature, we limit our enjoyments, never dreaming of springing a mine which abounds in phenomena.

Man is at the head of his kingdom; this being, whose nature is still a problem,—man, as the direct head of all animated nature, ought in his material organisation to be as susceptible to the acceleration of motion, as all other bodies; his nerves, electrical in a high degree, are the canals which are susceptible of receiving and propagating this prodigious acceleration of motion; we must merely *will* to employ a part of our *physical* and *natural* power, in order to put it in action.—The first cause of *general motion* is, I believe, inexplicable; we know that there must exist one, and that should suffice

After this incontestible position, it is clear that this motion vivifies all nature; but the manner of its action in the animal and vegetable kingdoms, differs from that of the mineral. In this last, there does not appear to exist any motion from the centre to the circumference; all is the result of diverse modifications—juxtaposition, or aggregation of parts, as we see in the phenomenon of chrystallization; on the other hand, in the other kingdoms there truly exists a source of life, a particular focus from whence flows the expansion of motion; and it is this which is generally known as the *vital principle*. In the vegetable kingdom, the vital principle may be easily recognizable; we know that it exists in the germs of plants, and that it is from this focus as a centre, that all the extensions of motion commence which give birth, increase, and strength to all vegetable productions. In the animal kingdom, the vital principle is likewise contained in a germ; and it is likewise from this that all the extensions of motion favorable to life and to the preservation of animals, emanate.

The vital principle is, then, the *radiating focus* of motion in all organised bodies; and the fibres in vegetables, like the nerves in animals, are the passive conductors of this motion, or *natural electricity*. As long as the vital principle in a body is sufficiently furnished with electricity, we are aware that it communicates to those bodies which inclose it, all the strength and vitality to which they are susceptible, and no other power whatever can either increase or strengthen it; but if from some secondary cause the vital principle becomes impoverished, then an apparent disorder takes place in one of the parts of these bodies, and disease makes its appearance. Now, if by proper remedies, or other means, we cannot give to the vital principle the *quantity of electricity* necessary for maintaining all its branches, the equilibrium of the animal system becomes totally destroyed, and death is the consequence.

Strictly speaking, disease in man originates only from this defect of the equilibrium or circulation of the animal electricity. To restore this equilibrium, there are two modes to adopt: the one by removing from the diseased part those obstacles which impede the circulation of the *animal electricity;* and the other, by acting directly on the vital principle, strengthening it, and imparting to it the power of removing, itself, the obstructions to its course. The first method is that which is generally employed by physicians; their internal remedies act most frequently on the obstructions only, and if they ever extend their action to the vital principle, it is accidentally, and merely in particular cases.

The second method is that pursued by magnetisers. The vital principle being a focus or centre of electricity, it cannot be strengthened except by an electricity analogous to it, and it is this which takes

place during the application of animal magnetism. From a well-organised vital principle, there passes through the nerves an active and penetrating animal electricity, whicy is conducted through the nerves of a patient; these eagerly take possession of it, and in their turn direct this action through the vital principle which requires strength. If the patient is not emaciated, if the duration of his disease or improper medicines, have not too much impoverished this *principle*, then it has the power of re-acting the effect which it has received, and, in a longer or shorter time, the circulation of electricity thus established terminates by subduing and totally driving out the obstruction to its course, and health ensues as soon as the *electrical equilibrium* is established between the magnetiser and the magnetisee.(2)

All living bodies are susceptible of thus communicating their electricity. If trees and vegetables increase more actively when kept near each other than when apart, it is only because of the circulation of *vegetable electricity* which they establish between themselves. It is the same with animals in herds, and living at liberty. This animal law is even extended to man in a natural state, living by hunting in the woods and forests; their strength and activity are incomparably stronger than those of men, who, although assembling together as they do, in society, live nevertheless confined in houses and under roofs, and are fettered by the laws of fashion, &c.

This circulation of motion in the crude and natural order of things, is absolutely passive, and depending *on the first generating influence of universal motion:* all matter blindly acknowledges its influences, and has not the power of changing its laws.

Man, alone, appears to oppose this general law.—Far from implicitly obeying it, with the rest of nature, he is constantly deranging the universal equilibrium by his irregular movements; thus he has need, physically speaking, of a power capable of balancing the evil effects of his morality on his organisation, and this power he enjoys in a supreme degree. We perceive, in his sympathy for the sufferings of others, in his sorrow for the loss of friends, faculties much superior to all other animate beings.

What other being in nature is susceptible of this sympathy for the misfortunes of its kind? We do not know. From the earthworm to the dog, who, on account of his noble instinct so well deserves our attachment, we find that all animals pass away the time of their productive necessities, being indifferent to each other, abandoning one another in sickness, and some of them even devouring the rest of their species. Man alone possesses this desirable sensibility; if, therefore, instead of endeavoring to suppress he yields to his gentler impulses, he will undoubtedly recognise the power of augmenting his *vital principle* at his will, and of restoring, by its action, that of his fellow man.

What is the nature of this *will*, the sole agent of the artificial action of his vital principle? Is it not the union of the two natures which we can neither see nor appreciate? In tracing it back even to the vital principle, I can only conceive it to be the last step (*echelon*) of *matter*,* and electricity gives to me a kind of perception of it; (3) but what exists even beyond this last step of matter?—The *will* exists, however; its action on the vital principle is plainly seen; but what is its nature? If its first cause is beyond matter, we must absolutely recognise in ourselves the existence of an immaterial principle, emanating from the fountain head, and from the original creator of the universe.

The strongest argument of materialists must necessarily fall, when it is proved that man is endowed with a *free will*, capable of acting at his pleasure on matter. "A body," say materialists, "can receive an impulse only by the blow or action of another body; if, then, that which we call *spirit* or *soul*, can produce an action on matter, we must conclude that this soul itself is matter." This is, without doubt, a very plausible argument; but we can triumphantly reply to it. If all in man is matter, there should exist no liberty in his actions. Matter, of whatever tenuity we suppose it, is submitted to invariable laws, which it cannot counteract. If, then, man has the power of counteracting these laws, that he may, so to speak, become master of the modifications of matter, there must exist in him something more than matter—because, he cannot be at the same time active and passive, nor become alternately cause and effect, acting, as he must if it is matter only, blindly and fortuitously, and in consequence of the inherent laws of matter.

But of what nature, is this *immaterial principle* existing in man? Here my researches close. Contented with recognizing this principle, and of seeing it made manifest by *my will*, I restrain from assigning a name to it, and from classing it among my ideas; for all the names that I should apply to it, would never express the sentiment which I have of its existence.

The direct communication of the *will* and the *vital principle* is no longer a matter of doubt; and what has been said in regard to electricity, clearly explains the remainder of the phenomena which follow the application of animal magnetism.

If man, then, as we see him when in perfect health, possesses in himself a fruitful source of motion, and the best possible conductors to convey his *beneficent electricity* upon his fellow beings, then, from him alone must we expect the greatest assistance in diseases; by means of his *nervous electricity* he can act victoriously over them, and the science of employing this electricity, is what we term *animal magnetism.*

When, in my first journal, I stated that we might consider ourselves as perfect electrical machines, the above is what I desired to have understood, and which many magnetizers clearly comprehend.—Those who can thus account for the effects they produce, doubly satisfy their heart and soul; but we must be aware, that it is not absolutely necessary to understand all the above, to magnetize well. The man of limited knowledge who is convinced of his power of relieving his fellow creatures, and ardently desires to do it, will be able, if sustained by a strong confidence in his means, to produce as happy results as the most faithful physician. This explains many of the practices of the people in superstitious phenomena, which are sometimes very efficacious in curing certain diseases. Who has not heard of the art of curing by charms, or by words accompanying a touch? Certain countrymen believe that they have the power of curing sprains, another continued fevers, others intermittent fevers; their faith being thus limited to a single disease, prevents them from going beyond their pretended power. We can easily imagine that they often fail, in effecting the cures which they undertake, but they sometimes make truly astonishing cures, which ought to ensue, after the greater or less degreee of opposition, which the universal fluid presents in order to recover the equilibrium to which it is constantly tending. Sometimes a disease very serious in appearance, needs the smallest *animal electrical commotion* to arrest all its fearful symptoms.

Whatever it may be, when we fully understand

* Probably he means matter reduced to its primitive state.—*Translator.*

the cause of the surprising and healthy effects, which result from the *electrical power* or *animal magnetism*, we will naturally conclude that the confident imagination of the magnetizer may add much to them, while that of the magnetizee but little, if any. For, whether we account or not for the reality of our means, we must, in some form or another, firmly believe that we have the power of producing an effect, before we attempt to exercise it; and as soon as we acquire this implicit faith or reason, the same results will follow.

The only efficacious magnetism being that which flows directly from us, we know that that from any other body, cannot be of any well marked utility to us; but when, so to speak, we assimilate these various bodies to our own, it is different, for then we make them conductors of our electricity.

All bodies whatever, may equally serve us as conductors, but some are better than others; the most certain rule to discover the best conductors, is to endeavor to distinguish those in which there is the most motion or electricity. Among this class, are animals, the trees of the vegetable kingdom, and in the mineral kingdom, *glass*, and the *magnet*.—The electricity of these bodies is surely inferior in strength to that which we possess.

When I magnetize a tree, for example, I communicate to it my *tone of motion*, and I place it in equilibrium with myself, the same as the electrical plate places a metallic conductor in equilibrium for a moment with itself. As long as this equilibrium between the tree and myself, is maintained, the same results nearly, as I produce myself, should take place on approaching it, and experience has proved it to the letter. The tree at Buzancy, has the power of placing in magnetic crisis, and of restoring to the natural state, all those persons upon whom I had already occasioned this effect; this is a very simple result, which I will establish. As this equilibrium between the tree and myself, absolutely depends upon *my will*, it ought, then, to continue as strong, and as long as I *willed* it so; which, on my part, exacts but little effort, seeing the passive state in which it exists with regard to me, and the kind of analogy which naturally remains between its vegetable electricity and mine.(1) I may say the same of glass and the magnet, and in fact, of all bodies which can serve as conductors of animal magnetism, and whose influence will be more or less active, as their electricity is more or less in analogy with ours.

I will extend these observations no further, at present; for I know that at this day it is impossible to resolve a thousand difficulties which occur to me. In fifty years, probably my reflections will become obsolete. But it is necessary to make a first step; it is the way with all knowledge; new phenomena will bring new ideas. The art of war, physic, and poetry, have all had some rules before they acquired their present perfection. May my observations, limited as they are, place us in the way of making more profound and correct ones, that animal magnetism may hold that true and sublime station which belongs to it, and that it may be viewed as the source of a rapid progress in perfecting all human knowledge.

* * * The above details of the sickness of M., the Count Louis of Rieux, very much resemble those of the little Aine, who was cured at Buzancy; they both positively designated the manner in which to magnetize them, and both stated that nothing passed into their systems when they were magnetized, except the relief they experienced. In our explanations on the existence of the magnetic fluid, internal vision, &c., we remarked that all the peasants habitually used the word *voir*, to see, while the Count of Rieux, appreciating the true sense of words, expressed the same idea by *sentir*, to feel. In proportion only to the magnetic cures which we effect among persons of his rank, or persons instructed in medicine and anatomy, will we be able to enlarge our ideas on the singular state of somnambulism.—For we can never have a conventional language by which to express these sensations to which we are not susceptible.

After the benefit which the Count derived from the application of a bottle, together with his statement, that when we magnetize him, there escaped from him, instead of passing into, a vapor or perspiration, an idea has occurred to me which subsequent experience will confirm or destroy; it is, that glass may serve as a certain indicator of the state of electricity in a somnambulic patient, whether it is plus or minus in quantity. I have several times remarked this same attraction for glass in certain patients, while others absolutely rejected it when the magnetizer did not hold it in his hand.

Glass, next to its electrical properties, is an excellent conductor of animal magnetism. Then, when after having magnetized a bottle, we place it in contact with the patient, the acceleration of motion occasioned by the fibres of the glass, acts continually on him as long as the magnetizer holds it; but when after having operated sometime, with the bottle, we abandon it wholly to the hands of the patient, then one of two things occur, depending upon the plus or minus quantity of electricity existing in the patient. If minus, the bottle will quickly discharge all its animal electricity, and as soon as it ceases to be in relation with him, it will be useless, and he will promptly remove it from him. On the contrary, if the patient has a superabundance of electricity, the bottle will always retain that which is disengaged from him; it will perform exactly the office of a siphon, and as long as he considers it useful to continue this effect, so long will he guard it with care. I believe that this phenomenon will most commonly occur among children and young persons. Nevertheless, this observation is worthy of a thorough investigation; I present it merely as a probability; I believe my views are correct, according to the premises on which I base them, but if there is a want of exactness in them, what will become of my conclusions?

In order to obtain a correct idea of the state of magnetic somnambulism, we must assimilate this state in the human kingdom, to that of the magnet in the mineral. The phenomena which the latter present, are analogous to those which we obtain from a person in the magnetic state.

Mesmer has often stated, that a person in the natural state has poles, an equator, and was naturally magnetic; that the aim of the magnetizer was to place this human magnet on its pivot, and then we immediately recognized in man the same phenomena which a magnet presents, when likewise upon its pivot; experience proves this assertion to the letter. Man in the natural state, may be compared to a compass needle, which is removed from its point of equilibrium; if placed on a table, it still continues to be a magnet, but will not exhibit any sign of direction until replaced upon its pivot.

It is true, that the magnet under any circumstances, will always give certain indications of cohesion, attraction and repulsion, with the iron or filings presented to it, while man has need of being, as it were, on his pivot to present these phenomena; nevertheless, friendship, love of country, sympathy, antipathy, anger, &c., may, with him, be the result of these physical effects, moderated and directed by his morality. As soon, therefore, as one person is

placed by another, in the state of magnetic somnambulism, he should be in communication with his magnetizer only, and should, *to the letter*, present to him the same phenomena which a magnetic needle exhibits to any bar of iron whatever; and without this similarity of effects, he is not in a complete state of magnetic somnambulism.

Mineral magnets, as well as artificial electricity, have some action on inanimate beings, but only as stimulants or accelerators of the proper motion of these beings. Their effects are transient, rarely useful, and often highly injurious, particularly if they are too powerful, or repeated too often. The reason is simple; the mineral magnet not having any direct analogy with our systems, causes only transient emotions without ever communicating its tonic movement, from whence follows, in its application, the same effects and the same dangers which I have before remarked to result from a treatment by artificial electricity.

* * When I state that artificial electricity can be of no service to us, I mean that its *motion* has no perfect analogy with any body in nature, except to act only as a stimulant. The numerous cures of Messrs. Dru, Andry, Mauduit, &c., do not change this opinion; their success has been only among those nervous diseases, the causes of which are attached to an organ so easy to act upon, that the least internal motion is sufficient to re-establish the harmony. Besides, I am disposed to believe that this re-establishment of the equilibrium, can only exist for a certain time, in many patients, because I see in artificial electricity only a transient effect, which leaves nothing behind it to sustain and perfect the good which it has produced.

We may compare electricity in its effects, to a sharp instrument, which is used for the purpose of cleansing from a wound some foreign body, which instrument produces pain as it enters the flesh: this preliminary may be necessary, but if we continue to irritate the wound with this instrument, instead of applying the suppurative and healing remedies which are required, we know how few would be the cures ensuing from such a proceeding; although the first operation was necessary and healthy. It is the same with electricity;—I am certain that we can cure all nervous diseases without it; I, also believe, that in many cases, it may be useful as a preliminary; but it is always much better to consult NATURE herself as manifested through patients in somnambulism, who will always indicate in an affirmative and certain manner, the necessity which such or such patient has of this accessary means; experience will probably, sooner or later, teach us, that in certain nervous diseases it is highly dangerous to employ *electricity*.

Magnetic somnambulists are not always capable of knowing the diseases of others; this property being only a sensation which is injured or perfected, according to the various circumstances under which they are placed. All those whom I have made use of as *indicators* have experienced this alternative; in consequence of which, it is with the utmost reserve that I question them on this subject. A somnambulist is not always an *indicator*; he may be very correct in prognosticating for himself, and fail in doing it for others. Sometimes, after having been able to detect diseases, they may lose their power and not recover it for some time. It is of importance, that those who manage somnambulists should reflect upon this observation. How many times have their answers dissatisfied us, and how often have persons placed in communication gone away discontented with their consultation! from whence will always follow doubts as to the reality of the existence of this state. Alas! it is not to the somnambulic patients that we must lay the blame of all the incoherences and absurdities which are often met with in their conversation, but to the magnetisers, who suffer themselves to be led away by an idle curiosity, in their experiments. They think that because a magnetic patient can see and judge correctly of a thing to-day, he will likewise to-morrow, and invite witnesses to judge of the extreme sagacity of the somnambulist. What, then, often happens? The circumstances of the patient having varied, a corresponding variation is produced in his sensations; nevertheless, the magnetiser being anxious that he should speak, that he should reply, by his blind enthusiasm compels this magnetic being to yield to the power of his will, and who consequently, utters a quantity of idle talk merely to oblige him.

But, it may be asked, if somnambulists are so liable to be mistaken, how are we to believe a word they say? I answer, that without confidence in a magnetizer, it is impossible to have any in the being under his care. The same judgment that rules our conduct in the common order of things, ought, much more, to rule us in our magnetic operations, where we know the dependence of others is certainly the greatest.

Governed by enthusiasm, envy, or interest in proving any thing which we have advanced as certain, the will necessarily bears a manifest impulse, and I always distrust results determined under these sensations; while I place all confidence, even at the risk of being daily deceived, in the man in whom I recognize only a desire to do good, because his will can never be to surprise me by wonders nor deceive me by appearances.

Why should we desire to have sybils, prophets, physicians, oracles, and even somnambulists? This is not the glorious end at which a magnetizer should aim; he ought only desire to cure, and to do good; the effects of all other *will* can only be false and deceptive; and it is truly a great blessing for men to have philosophy sufficient to protect them against all the chimeras which boasters and lovers of the marvellous have given to the simple and sublime phenomena of magnetic somnambulism.

NOTE 1.—Aerial electricity acts truly upon our nervous system, but it is in a crude, unhealthy manner; the electrical molecul, as we will term them, can never unite nor assimilate with ours; they produce only a shock or trembling, more or less considerable, the effect of which is as transient as sound, unless the vibration given to the nerves is very strong, or the disease with which we are afflicted is serious. But if we repeat these vibrations for some time, we may easily conjecture the dangers which would necessarily result throughout the nervous system.

Animal electricity, on the contrary, infinitely more penetrating than aeriel electricity, by its analogy with our system, unites with our humors, and vivifies them as long as its action lasts; far from escaping and leaving behind it only a vibration more or less injurious to our nerves, it takes possession of our faculties in such a manner, that we are capable of becoming with respect to it, the same as the Leyden jar is to aeriel electricity. And when we cease to feel any effects from its happy influence, it is a proof of the most perfect equilibrium with nature.

NOTE 2.—I do not believe with many magnetizers, that there are various means of charging one's self with electricity that we may act more powerfully on a patient; I know of no means for it, and I have never thought it a duty to find them.

A magnetiser does not impoverish his vital principle when he magnetizes: he may fatigue his resources by magnetizing too long a time or in painful positions, the same as he would fatigue himself in any kind of exercise whatever; but we are strong in imagining that it is at the expense of our own electricity which we impart to a patient. We may compare the magnetic operation to that of a wax candle,

whose flame may kindle twenty others without losing any of its heat. An inflamed body conveys its action, only on another body in which the philogiston or vital principle is enclosed. The more easily this philogiston passes off, as in a wax candle, and generally in all bodies not very dense, and whose cohesion is not very powerful, the more readily will the flame present itself; so when we magnetise, the action which we present upon the vital principle of a patient, causes it to react as soon as it is is ready to develop itself from him, and in all cases, without the magnetizer losing any portion of his strength or activity.

Note 3.—The ancients had the idea of two natures in man, spiritual and material. The ancient theology of the Hebrews spoke of man in three relations—MENS, ANIMA, ET CORPUS, mind, soul, and body. The Egyptians, likewise, believed that man partook of three distinct parts, mind, soul, and terrestrial or mortal body. They regarded mind as the SPIRITUAL PART OF THE SOUL; the soul as the SUBTILE BODY WITH WHICH THE MIND WAS CLOTHED; and the terrestrial body as animated by the soul, or subtile body.

Pythagoras, who draw largely from the Egyptian philosophers, taught that the intelligent soul was clothed with a subtile body, which he named CHAR DE L'AME, which united the two natures. He pretended that this intermediary was luminous; and that, moved by the intelligent soul, its action was capable of extending throughout nature. This CHAR DE L'AME, this luminous intermediary resembles very much, it seems to me, that which we designate as animal magnetism; and I doubt whether the Grecian sage could have explained himself more clearly, had he known the new phenomena which this discovery presents to us.

Pythagoras saw only man endowed with an intelligent and judged that the sensible soul or principle of sensations, and of instinct in animals, was of the same nature as the animal soul, or the subtile CHAR DE L'AME of man. These ideas, as simple as they are sublime, were assuredly in opposition to the doctrine of Metempsychosis; therefore, it is untrue to hold forth the opinion that Pythagoras ever taught this doctrine in the manner represented by the poets, and we cannot find any vestige of this absurd notion among the SYMBOLS which we have of him, nor in the precepts which his disciples have collected and left to us as the substance of his doctrine.

I am not certain but that our philosophers of the present day would gain considerable by returning to the Pythagoric school, and that they would find in this subtile intermediary, this CHAR LUMINEUX, the means of reuniting their various systems on the nature of beings.

Note 4.—The continual relation which existed between the tree of Buzancy and myself, was proved to me by this fact. Last summer, while I was at Strasburg, several patients whom I had formerly placed in the magnetic crisis, fell into this singular state, every time they went under its shade. I can give no reason for this phenomenon, except by comparing the state of a magnetized tree to that of a magnetized bar of iron, which as long as it undergoes no alteration, preserves its magnetic property and manifests it every time that we place in contact with it any analogous body; so, when a tree is once ANNUALLY MAGNETIZED, it is likely that it preserves its magnetic properties in a similar manner, and that on account of their analogies it is capable of evincing them on the approach of persons who have previously been.

For the rest, I no more comprehend this phenomenon in the tree than I do in the magnet; but I can testify that it is as evident in the one as in the other. As to the time in which the magnetic property of a tree should exist, I can conceive of no other than the death or total neglect of the magnetizer; yet I think that it ought always to exhibit its influence on the many persons, who, continuing to be patients, have once been sensible to its effects.

Egyptian Antiquities.—We learn from a London paper that a phamphlet has been written by G. R. Gliddon, late U. S. Consul at Cairo, denouncing Menemet Ali for what Mr. Gliddon conceives to be a sacriligious desecration and demolition of the pyramids, the temples, the tombs, the sculptures, and the paintings which record the glories of Pharaonic epochs; and in which consists much of the romance which now attends the wandering footsteps of the intellectual visitor of Egypt. The destruction of the monuments of Egypt by its present Government is visited by Mr. Gliddon with the fiercest anathemas of an enthusiastic devotee in antiquities.—Boston Evening Journal.]

THE MAGNET.

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NOMENCLATURE.

Every person familiar with the phenomena described in this work, has felt the want of suitable terms, by which to designate them; and some terms we have been in the habit of using, have not been understood by all, and others, it is well known,—such, for instance, as "somnambulism," have been used in a sense widely different from what their radical meaning would justify.—Somnambulism, from *somnus* and *ambulo*, properly signifies walking in a state of sleep; but it is often incorrectly used to signify a state of sleep, merely, and without any reference to its peculiar nature, or the manner in which it may have been brought on. But, as there is manifestly a marked distinction between natural sleep, and that which is artificially produced, we want some term suitable for designating the state of *induced* sleep, to distinguish it from any other. And, so of the *process* for producing sleep by *sympathy*: the term "magnetising" has been used for this purpose, to some considerable extent, but all have been agreed that this was not, by any means, so appropriate as could be desired. The truth is, many of the phenomena common to a state of induced sleep, are so new and unaccountable, that language does not seem to have afforded the necessary terms for designating them all: and, though we offer the following, we must confess that these do not, by any means, cover the entire field. Some of these may not, perhaps, be quite "classical," yet they will, we are persuaded, answer a good purpose, till better terms can be found.

There can be no doubt, but the *agency* by which we operate in producing sleep, is what has generally been known by the term *sympathy*, from two Greek words, which signify fellow feeling, or a like feeling with another,—as *sumpascho*, it is well known, was used among the Greeks in this sense. And hence the use which has since been made, in the science of medicine, of the term *pathos*, or *pathema*, which signifies not only disease, but *passion, feeling, excitement, emotion*; and *pathetikos, passion, suffering, susceptible of emotion*, that which *produces emotion* or *feeling*. No term, therefore, so well expresses what is really meant when speaking of the *agency* by which one person is enabled to operate on the mental or physical organs of another, and for the production of all those phenomena peculiar to the induced sleep, as one which gives the idea of *sympathy*, and a state of *susceptibility*, which renders this influence efficient and successful in producing the desired results in any part of the system on which the operation is performed. Every physician knows, that disease is often communicated by *sympathy*; and it will appear on examination, we think, that this same *agency* may be equally efficient in its cure.—But the results brought about in this way, amount to nothing, more nor less, than what has so long been known under the term "animal magnetism." Hence our authority for the adoption of the following terms; and we may add, that they have not, heretofore, been *appropriated* to any other use, and hence there is, there can be, no rea-

sonable objection to their application, in the sense here proposed.

Pathetism.—The *agency* by which one person, by manipulation, produces *emotion, feeling, passion,* or any physical or mental effect, in the system of another. *Susceptibility* of emotion or feeling, of any kind, from physical contact, or *sympathy* with the *influence* or *will* of another.

And we respectfully submit it to all concerned, whether this be not a far better term for the thing *signified,* than either "magnetism" or "mesmerism"?

Pathetology.—The science which teaches the laws of *pathetism.*

Pathetise.—The act, or process, of manipulating the human body, for the purpose of inducing sleep, and the cure of disease; or for the production of any mental or physical phenomena.

Somnipathy.—Sleep from *sympathy,* or the process of pathetising.

Somnipathist.—One in a state of somnipathy.

Somniloquist.—One who is made to talk in a state of somnipathy.

Cephology—From *kaphale,* the head, and *logos;* the *science* growing out of the editor's discoveries, which teaches the *influences* and *susceptibilities* of the human brain, and the method of controlling the separate mental and physical organs by *pathetism,* produced by placing the fingers on different parts of the *head,* and by which their action is *suppressed* or *controlled* at the will of the operator.

When we first made a discovery of the susceptibility of the separate cerebral organs, for the want of a better term we called our experiments "Phreno-Magnetism;" and Dr. Engledue, of Portsmouth, England, has appropriated to them the term "Ceribration;" but we prefer the above, for the reasons already stated.

PROCESS OF PATHETISING.

Though the process of pathetising for the cure of disease was quite fully detailed in the second number of the Magnet, yet we have been frequently requested to give the particulars again, somewhat more minutely.

The following summary of directions were written as a private letter to a gentleman in Warrenton, Dallas co. Alabama, some three months ago; but failing of an opportunity to send it in manuscript, as we anticipated, we now give it a place in the Magnet, under the conviction that others may wish the same information, and will be as much gratified on reading these remarks, as the friend for whom they were at first intended.

We design to prepare a work on this subject, should nothing prevent, which will fully answer all the purpose of those who may wish to test the efficiency of *pathetism* or sympathy, in the cure of disease. But, for the present, the following must suffice.

We have before stated, that every thing will depend upon the *susceptibility* of the subject, even supposing the operator to be of sound health and a good heart. And, then, it should be remembered, that it is by no means necessary to produce sleep, in order to relieve one from pain and disease. One of the most successful operators in Paris, it is said, has never been known to produce a state of somnipathy in any one of his patients.

But, before we state our own process, it may be well to give a brief account of the old method, which still obtains in France, Germany, Russia, and generally in this country. We should state, however, that we scarcely ever observe the old method, and do not in any case depend *much* upon what are usually called the *passes.*

The subject should be seated in a comfortable chair, where he will feel perfectly easy, and where he can recline the head, if he wishes to do so. Seat yourself in front or by the side of him, and so near that you can easily reach with both hands, the top of his head. Grasp his thumbs with considerable force, and bring the ball of your own thumbs directly into contact with his. Hold his hands in this way some five or ten minutes, looking him directly in the eyes all the while, and exert your *will,* firmly, to cause him to go to sleep. As soon as you perceive any signs of sleep, raise your hands and carry them *from* his, outward in a circle, to the top of the head; and with the fingers gently extended, pass your hands slowly down the sides of the face, over the shoulders and down the arms, over the inside of the hands; and then carry them off from him in a circle, outwards, up to the head again.

To wake him up—put your thumbs over his eyes, and pass them upwards *quickly,* over the forehead. Put your hands on the sides of his head, and pass them off, upward, *quickly,* as if you would brush away some noxious vapour from the surface. Then put your hands down to his, and pass them up his arms and off, *quickly*—that is, make the passes, backward and upward, along the arms, and continue this process till he is relieved.

Remember, that if you succeed in producing sleep, your patient will usually tell you what to do in case of any difficulty; and, also, how you may operate in his case, either to produce sleep or to relieve pain. And this is the reason why it is not necessary to go into details here, as to the *many ways* in which we have been enabled to succeed with various persons.

Bear in mind, that all persons are not alike *susceptible,* and the same directions for the *relief* of one, may not always apply to the case of another, afflicted in the same way. The great law of *sympathy* is the same in all; but it is not alike accessible to all.

We usually produce sleep in the following manner:—The patient is seated, as above described; and *standing* by his side, we place one hand over the whole of the forehead, and the other directly over the front and top part of the head. Or thus: stand directly behind the patient, and put one of your fingers of each hand on the space of the head directly back of the centre of the organ marked by Gall and Spurzheim as *caution.* Or, you may cover these two points with the thumb and finger of one hand, and with the other hand press upon the whole of the forehead; or, place one finger over the space between individuality and eventuality. If the subject be susceptible, this process scarcely ever fails of producing sleep. And, when you perceive he is quite composed and more or less subdued, you may pass the hands gently from the top down the sides of the forehead and face, and down the arms to the ends of the fingers, as above described. —If your subject should become convulsed, do not be alarmed: keep calm, and indulge no unkind or impure

feeling, if you would not involve yourself and subject in difficulty.*

To wake your patient up, place one hand directly over the back part of the head, covering from the organs of philoprogenitiveness down over the cerebellum; or, place your two fingers directly on the organs appropriated to *causality;* or, pass your hands, quickly, up and over the frontal region, as if you wished to brush away something collected there.

But it often happens, that persons succeed in putting others to sleep, and they find it impossible to wake them again. What shall be done in such cases? Answer,—learn to be more careful how you meddle with such an efficient agency, and of which you know so little. We have known serious results to follow the operations of persons, when the motive has been mere curiosity.

But in cases of difficulty, do not be *alarmed:* let the patient alone. If left entirely to himself, the influence will, in time, disappear.

The following is our usual method for relieving headache, when the pain seems to be located in the frontal region. Let the patient lean his head back, so as to rest it firmly in your hand, your hand being sufficiently low lo cover the cerebellum. With your other hand, make the passes down and over the forehead and temples. If the pain is located in the back part of the head, cover with your hand the front part, ane make the passes over the occipital region.

To relieve the toothache, pass your hand gently over the face and the part affected.

These operations must, of course, be continued from ten minutes to half an hour, or longer, and repeated from time to time as the case may require.

THE MEDICAL EXAMINER.

A scientific gentleman of this city has put into our hands three numbers of this work, containing what purports to be a philosophical explanation of mesmerism. Though we do not, by any means, admit the assumptions on which the so called explanations are given, yet, we find in these articles considerable that is worthy of notice, and which must tend, in some degree, to throw light on this important subject.

The principal article is made up of quotatious from a lecture delivered before the Philadelphia Medical Society, last November, by Dr. R. Coates. He says:—

"The existence of the cataleptic condition, as occasionally produced, apparently by certain manipulations, or by certain exercises of individual will, is no longer a legitimate object of debate among well informed physicians. I know of no such individual who hae the hardihood to express a positive disbelief in it, though there are many who smilingly or fearfully decline all expression of opinion on the subject, well knowing that an affirmative avowal would produce a loss of influence with the vulgar or the ignorant, and limit the immediate emoluments of practice."

The Dr. uses the term *cataleptic*, in a borrowed sense, to signify the somnipathic state; but he assumes, and seems to think he has demonstrated, that this state is not produced by the power of the will at all. It is evident, however, that Dr. Coates has not seen much of the phenomena, said to have been produced by pathetism; for, if facts demonstrate any thing, we have seen and published enough to convince any candid mind, that this state may be induced, by the power of the will, over the nervous system. Dr. Coates and the editor of the Examiner, seem to have drawn their conclusions from one or cases; but it is a fact, of which they do not seem to be aware, that no two cases have been known, in which all the results were, in all respects, exactly alike.

Dr. Coates describes two cases, which occurred in and near Meadville, Pa., in 1829 or 1830, produced by the exercises at a camp meeting, and which he pronounces *identical* with that resulting from manipulation. And it may be remembered, that we, more than two years ago, stated the very same opinion. Indeed, we have always believed, *that the state of the nerves* observed in persons who are said to lose their strength, under religious excitement, was precisely the same as that produced by pathetism. We have seen and examined scores of cases; and our familiarity with these cases some twenty years ago, brought us to the conclusions we have already published in relation to the power of the mind over the nervous system.

We agree with Dr. Coates, that there are good reasons for believing that we are on the eve of the discovery of a law (not a "new" one, however,) of Physiology; and Phrenology and Pathetism will lead to that discovery. He mentions the following as a curious fact, which he thinks may probably admit of physical explanation, viz. the aptitude of minds, in society, to assume a common train of thought or feeling, grave or gay, as if by contagion. But this fact has already been satisfactorily accounted for by Phrenology. Every intelligent Phrenologist knows, for instance, that the exercise of one organ by one person, will excite the same organ in another. Thus, for instance, combativeness will excite combativeness, mirthfulness will excite mirthfulness, and so of the other organs. This is according to a law of the human mind which all acknowledge, and the fact is worthy of more attention than it has hitherto received.

But as for these new discoveries of theories, we have always been jealous of them. Theories are very easily built, and as easily demolished. We have expected to hear of one and another, in different parts of the world, who will be coming forward, from time to time, with explanations and theories in relation to Pathetism.

ASTRONOMICAL PHENOMENA.

But few persons have any idea, as to the great misapprehension that prevails with regard to the comparative magnitude and distances of the innumerable bodies which compose our solar system. The little instruments called *orreries*, have contributed, in no small degree, to this misapprehension. The following comparison is from the work of Sir John Herschel:—

* The following case has just been stated to us. A physician of the city of B. wished to pathetise a lady. She consented; and on her finding herself in the somnipathic state, she refused to hold any intercourse with him. She finally directed him to send for another gentleman, whom she named; and when he arrived, she stated to *him*, that on going into that state, she discovered that her operator was actuated by improper feelings, and hence she would on no account consent to hold any conversation with him.

Choose a well leveled field, or bowling-green. On it place a globe, two feet in diameter, to represent the sun. *Mercury* will be represented by a grain of mustard seed, on the circumference of a circle 164 feet in diameter, from its orbit; *Venus*, a pea, on a circle 284 feet in diameter; the *Earth*, also, a pea, on a circle of 430 feet; *Mars*, a large pin-head, on a circle of 654 feet; *Juno*, *Ceres*, *Vesta*, and *Pallas*, grains of sand in orbits from 1000 to 1200 feet; *Jupiter*, a moderate sized orange, in a circle nearly half a mile across; *Saturn*, a small orange, on a circle of four-fifths of a mile; and *Uranus*, a full sized cherry, upon the circumference of a circle more than a mile and a half in diameter.

Such are the relative dimensions of our solar system; but it is with the amazing distances of some of the stars that the mind struggles in its attempts at comprehension. A method has been proposed for estimating the distances of the planets, by comparison with the velocity of a cannon ball, rated at 1 1-2 German miles per minute.—With this velocity, a cannon ball fired from the sun would reach the planet Mercury in 9 years and 6 months; Venus in 18 years; the Earth in 25 years; Mars in 38; Jupiter in 130; Saturn in 228; and Uranus (Herschel) in 479 years. With the same velocity a shot would reach the moon from the earth in 23 days, little more than three weeks.

It takes a ray of light eight minutes to travel from the sun to our earth; but from one of the nearest fixed stars it takes more than ten years!

The white clouds, perceived by powerful instruments, are called Nebulæ. They consist of innumerable stars clustered together, as in what is called "The Milky-Way." They develope some of the most extraordinary phenomena, in regard to the immensity of creation and the formation of worlds. Various astronomers have estimated their numbers at three or four thousand.

But, light from one of these Nebulæ requires 30,000 years to recah this earth; consequently, they must have been in existence during this length of time, and how much longer, who can tell?

Love of Offspring.—How strikingly the goodness and wisdom of God are exhibited in the love which parents generally feel for their offspring! Indeed, we all know, that it is a faculty not at all peculiar to the human species. Without it, children would be considered an intolerable burden; but with it, they become the dearest of all earthly objects, and sources of the purest delight. See how plainly this affection speaks out in the following lines. They are from a father, who recently announced the death of his little one in the South-Western Christian Advocate:

"We miss our babe when evening gathers round us,
Thy place is vacant on thy mother's breast;
We wake no more to feel the spell that bound us,
When once to ours thy infant lips were press'd.

To that deep life God's love hath surely borne thee,
Dear, cherish'd babe; nor seek we to reclaim.
How much we love, how much we miss and mourn thee,
He knows alone—and "Blessed be His name."

The heart from which these lines emanated, must feel some pity for the poor father and mother, whose feelings are expressed in the following lines:

"And when I seek my cot at night,
There's not a thing that meets my sight,
But tells me that my soul's delight,
My Child is gone!

I sink to sleep, and then I seem
To hear again his parting scream:
I start and wake—'tis but a dream—
My Child is gone!

PHYSIOLOGY.

LECTURE ON PHYSIOLOGY.

By Robert Nelson, M.D.

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The following is a brief report (from the New-York Lancet) of the first of a series of Lectures, commenced in this city a few months since by Dr. Nelson. The reader will find some important ideas in the following sketch; and we could hope that some means might be used to induce Dr. Nelson to favour the public with an account of his experience, and views at large, on this subject,

1. Before we inquire into the laws and functions of the body, we must become acquainted with the elements of which it is composed. After learning this much, we may venture a step further, and examine the structure of parts, a knowledge of which naturally leads to the discovery of their use; but, as the various parts of the body are designed for two purposes only—the preservation of the individual and the perpetuation of the species—they are more or less related to, and dependent upon each other; hence flow a multitude of accidental influences which interfere with the pure function of an organ, and which are the agents that disturb health. Here lies the proximate cause of disease.

ELEMENTS.

2. *Matter* is said to be something which is *impenetrable*, consequently occupying space; which is *extensible*, consequently it is divisible.

3. *Impenetrability*, is proved by this—that one body cannot be made to occupy the space which another fills without displacing it; for if matter were penetrable, one body might be forced into another, and the two would fill no more space than one did; in this way the whole universe would become infused into a mere atom. We need not pursue the doctrine of impenetrability any further, as it may be dispensed with on the present occasion.

4. *Extensibility*, or divisibility, which is the same property, is deserving of our greatest attention; for it is this property of matter which lies at the bottom of all the phenomena manifested in all the works of creation.

5. To illustrate the palpable extensibility or divisibility of matter it is customary to refer to the art of gilding, or even that of making gold leaf; 282, 000 of which leaves laid upon each other will make a pile only one inch in height; and 1500 will equal a thickness no greater than that of a leaf of paper. Another palpable example of the vast extensibility of matter without losing any of its properties is afforded by the spider, a thread of whose web, four miles long, weighs only one grain.

6. Another example of the divisibility of matter

is seen in the diffusion of color. A grain of indigo will tinge a large quantity of water.

7. A still greater example of the wonderful divisibility of matter is recognizable by the sense of smell. It is said that one grain of musk will scent a room twenty years without perceptibly losing weight. The cedar of a common pencil will continue to exhale odoriferous particles for many years, and scarcely diminish in weight.

8. These several palpable, ocular, and olfactory examples of the vast divisibility of matter, not only prove how minutely it may be reduced, but also how wonderfully acute is the power of perception; for, to be conscious of the presence of matter, it must strike a sentient part of our body. We recognize the gold leaf and the spider's thread by feeling, the tinge of bodies by the color they reflect, and the odor of substances by the small particles of their bodies which they continually exhale, and which come in contact with the olfactory expansion.

9. Another example of the extent to which matter is reduceable without losing its sensible properties, and one which is more applicable to the illustration of structural formation, is found in animalculæ. We are astonished, not only when we contemplate the diminutive size of these animals, but still more so on beholding that they are possessed of viscera and limbs; and that even these lower parts are complicated as to structure, since they perform movements which our knowledge of the higher animals shows are effected by special agents. Thus:—

10. The motive organs in serpents consist of a set of intercostal muscles, which, connecting rib to rib, by their contraction draw the ribs together, from the tail towards the head, alternately on one side and then on the other; in this way, drawing their body undulatingly forward. If we descend in the scale of creation one degree lower—to the eel or water serpent—we shall find that progression is effected by the same mechanism as in the serpent, because both these animals are of the same type; but in this species the ribs have stopped short of their completion—they have advanced only as far as a cartilaginous structure. Descending still lower in the scale of creation—to lumbrici, at first sight the whole structure appears homogeneous; but on closer examination, we discover the very same mechanism that was so striking in the serpent—striking because he has grown to the ultimate point of perfection which appertains to the type of animals of which he is a species. But, in descending to the water serpent, we found that the ribs were imperfectly formed, only rudimentary; for the same reason, because all the laws of creation are only progressive links or degrees of the same generic power, we now find in the worm; that the ribs which were disappearing in the eel, have now quite vanished—that is, the creative power has not yet attempted their formation. Having gradually followed the form of the agents of locomotion in the ophidian type down to animals of so primitive a step in creation as are the lumbrici, we find ourselves prepared to understand that it is by a similar agency to the one already described, that the vibrio performs his locomotion. How infinitely small must not the *agency* of a segment be! to say nothing of the parts which compose that segment! But the contractile substance—for we cannot call it muscle—of one of these little animals, is yet infinitely smaller in almost all the infusoria, than in the vibrio we have just contemplated. We need see but once the rapid, yet regular and designed movements of the cilia of the Leucophrys, to be struck with amazement at the wondrous hand of the Creator.

11. If we turn to another type of animals—insects—and observe them as we have the ophidian, we shall meet with farther proof of the integrity of matter, although it be reduced infinitely small. Commencing with the lobster, and going through the species of crab, of emphemeris, of grasshopper, pediculus, pulex, and the acarus scabei et casei, we cannot fail to be struck with the generality of form and movement which prevail through the whole type; and as we have positive truth that the agents of motion are muscular fibres in all those species which are large enough for demonstration, we must infer that the same agency prevails through the whole type, even to the smallest species. These remarks and demonstrations prepare us for the consideration of the next subject.

12. *Atom* is a particle of matter which cannot be further divided. We may form some conception of the diminutive size of an atom of matter by what has been said of animalcula; for it is evident that their smallest organs are made up of an assemblage of whole atoms of matter.

13. We need not trouble ourselves with the abstract consideration whether or not there is a term to the divisibility of matter, or whether the theory of atoms be correct or not, since it is a subject that can never be discovered. We must still cling to the theory of atoms, for we know of no other that can afford us an equal facility of expressing our ideas concerning the elementary condition of matter to others, and of comprehending theirs on the same subjects, and on the formation of bodies.

14. *Inertness.* Ponderable matter is absolutely inert by itself, its properties being always inherent and essential. Any power it may manifest is derived extrinsically—that is, from the action of some other body. If a solid body become fluid, or a fluid one become a solid, they do so by receiving or parting with caloric.

15. *Permanence* of matter. Although the extensibility (4) of matter is almost infinite, and the theory of atoms (12) is more an abstract than a physical truth, neither of them can lead us to believe in the destructibility of matter, for every attempt at annihilation, even of the smallest particle, is vain; and if there were no other proof of permanency than that of impenetrability (3), it alone would be quite sufficient. We must therefore feel convinced that whatever IS will continue to be and doubtless ever WAS; at least as regards any theory or matter of reasoning in relation to *us*.

16. Matter is subject to three great powers. 1st. Inertia; 2nd. Attraction; and 3d. Repulsion. Although these permanent truths are commonly called physical laws, to distinguish them from what are called chemical and vital laws, they are nevertheless constantly present and contending against each other even in living bodies. It is barely necessary to mention them in this place, although a thorough knowledge of them is so essential to the surgeon, and the ignorance of them is the cause of so much false and superficial reasoning, bad practice, and consequently undue suffering to the patient.

17. Our power over, and our knowledge of matter, show that it is not all of one kind, but of several kinds, each of which chemists have called an element, from the permanence of its character. By destructive analysis they have not been able to reduce all manner of substances to which they have access to a less number than fifty-five varieties, always possessed of identical and invariable properties, and hence called simple or elementary bodies. All known bodies, however diversified they may be,

consist of one or more of these elements variously combined.

18. Physicians have divided the consideration of matter into two great classes, the ponderable and the imponderable. The latter is often treated of, not as matter but as *condition* of matter. Whatever doubts may exist on many points of fact, it is certain that the imponderables do incorporate themselves with the ponderables, and when this happens a very perceptible alteration in the ponderables is made manifest.

19. Of the whole number of ponderable elements only nineteen are alleged to enter into the composition of organic bodies. These have been variously classified by different physiologists; and by Tiedemann thus:—

20.

A. *Non-metallic.*

Animal vesicle. { Vegetable vesicle. { Water { 1. Oxygen. 2. Hydrogen. . . . . 3. Carbon. . . . . 4. Azote. 5. Phosphorus. 6. Sulphur. 7. Iodine. 8. Bromine. 9. Chlorine. 10. Fluorine.

B. *Metallic substances.*

11. Potassium, 12. Sodium, 13. Calcium, } Alkaline metals.

14. Magnesium, 15. Silicium, 16. Aluminum, } Earthy metals.

17. Iron, 18. Manganese, 19. Copper, } Proper metals.

21. Out of these 19 ponderables, 15 are only accessory, but are not essential, to organization, while the remaining 4 are indispensable in the construction of even the most insignificant animal; and only 3 to the rudimentary vegetable. They are—

1. Oxygen, 2. Hydrogen, } in the proportion to form water, } Elementary vegetable tissue.
3. . . . . Carbon . . . . } Elementary animal tissue.
4. . . . . Azote . . . . . }

22. None of these ponderable elements, however they may be mechanically combined, or chemically united, are capable of forming either a vegetable or an animal. It is certain, then, that some other element, or elements, should unite with them in order to create an organic being.

23. *Imponderable* elements. These are admitted by physicians to be four in number. 1. Electricity; 2. Caloric; 3 Light; and 4. Magnetism.

24. After treating of the material properties of these four elements, I shall venture, for the sake of Physiology, to add a fifth to the number. In doing so, I may excite surprise, perhaps alarm; but I trust that the advantages it will yield to us will be such as to excuse me and to outweigh ancient prejudices.

25 Some philosophers do not consider these imponderables in the light of bodies, but rather as phenomena produced by certain alterations in the state or condition of matter; and this view of the subject has recently received some support by the late brilliant discoveries in electro-magnetism.—They even go so far as to suppose that the whole four are identical, and that the apparent difference between them is only another form in which they are made manifest. This hypothesis may or may not be true; but if true, it will be an instance of a violation of the law of analogy,— a fact which seldom happens. Inertness, attraction, and repulsion, are doubtless '*conditions*' of matter; but we never find them producing such strikingly diversified phenomena as distinguish the properties of one imponderable from another. Whatever may be the reality of this subject, I shall consider these elements as if they were substances; for in this light we shall find less difficulty in conveying our ideas to others, and in receiving theirs. For instance,

26. We are made sensible of the existence of imponderables only when they are united with palpable matter; for, in their independent or separate state, they escape our notice. But that they do possess an existence apart from matter is presumable from what we know of light. Light is emitted from its source in straight lines, but is not perceptible unless its rapid flight be arrested by an opaque body, or that it darts immediately into the eye. A stream of light passing through the etherial space, cannot be seen. We may look through it and not see it, though we see objects beyond it. This fact is verified to us every night and during eclipses, when we look at the stars and planets. It is also verified to us in many other ways, even in the day time; for we can look through a large stream of light without seeing it, and yet be able to see the letters in a book placed beyond it, exactly as if no such light intervened. If there were no opaque matter to intercept the rapid flight of light—to retain it long enough for the eye to *feel* it, the sun himself would shine in vain, and we be plunged in utter darkness, although swimming in a flood of light.

27. The above facts show that light possesses the substantial property of matter; the daguerreotype—even the direct accumulation of light on bodies which are hermetically closed, support this idea. The same facts, but in a stronger degree, hold good of caloric; for we cannot add it to one body without taking it from another one, nor can we banish it from one body unless there be another to receive it. It must then appear even that the imponderables, like the ponderables, *are indestructible, and consequently have a permanent existence some where*, but are not always perceptible to our senses, the latter being comparatively of too gross a nature to perceive the former unless accumulated in a sufficient quantity to act upon us.

28. When a solid body becomes fluid, it does so by absorbing caloric from some other body. When it loses its fluidity and becomes solid, it does so by yielding up the caloric it possessed to some other body which has less. When a fluid body becomes gaseous it does so by absorbing a further quantity of caloric, *vice versa*. What has just been said in regard to light and caloric is applicable to electricity.

29. When bodies combine, electrical phenomena are set in evidence. The electrical states of bodies differ from each other, and this difference must cease, must be brought to a common term, when they combine, else the new body could not be a unity.

30. It is evident that these imponderables both associate with ponderables and depart from them. It is also known that caloric exists in a *latent* state, that is, in a passive state in bodies; and although we cannot say the same thing, with as much evidence, of light and electricity, there are too many instances where this is the case to leave a doubt on the subject.

GENETIC OFFICE OF THE IMPONDERABLES.

31. Without the influence or presence of the imponderables, the ponderables will persist in their in-

ertness. It is their presence which marries brute matters together, making one out of many.

32. It was the first four imponderables that engendered out of chaos the sea and the land—the rock and the ruby; and to all appearance these four alone rioted in undisputed power for ages ere their fifth brother claimed his share in the strife. They preside at and control the *brute* unions, of all ponderables.

33. Examples. Oxygen and hydrogen may remain forever in company—mixed with each other, but will not unite unless one or more of the imponderables effect the bans.

34. Even sugar does not dissolve in water, nor can the simplest union take place without the intervention of an imponderable.

35. Water itself cannot pass from the solid to the fluid, and *vice versa*, without such presence, without the intervention of both caloric and electricity.

36. The electric interference has been strikingly shown by Faraday. When one end of a rod of iron is heated, its electrical state varies and during this time nitric acid will not act upon the other end. While the wire is a positive *electrode*, the acid cannot act upon it; but when wire is placed at the negative end of the battery, it is acted upon violently. These facts are additional proof of the axiom that ponderable matter is absolutely inert.

38. Let us now advance one step further before we inquire into Life. Chemists have long since established it as a doctrine, that bodies unite with each other in definite proportions: as 1 A with 1 B; 1 A with 2 B; 1 A with 3 B, &c. This theory implies that these unions cannot take place in any variable proportions.

39. A second doctrine is—these unions are effected directly, as

1 sulphur with 1 oxygen makes hypo-sulph. acid.
1 . . . " . . . " . . 2 . . . " . . . " . . sulpurous acid.
1 . . . " . . . " . . 3 . . . " . . . " . . sulphuric acid.

Whether this doctrine be true or false, it has answered the most exact calculations in the arts; but as regards organic chemistry, it has been the source of great limitation.

40. The latest and most important doctrine regarding definite proportion in unions is that which is called the compound Radical Theory, thus:—

Sulphur . . . . = A 1 + Ox. 1 = B Hypo-sulphurous acid.
Hypo-sul. ac. . . . = B 1 + Ox. 1 = C Sulphurous acid.
Sulphurous ac. = C 1 + Ox. 1 = D Sulphuric acid.

Professor Graham has extended this theory even to the formation of the various salts, but it is unnecessary for me to do more than mention it.

41. Whether this compound radical theory be correct, it certainly gives us greater facility in conceiving the operations which take place in organic chemistry, than the old method did.

42. An additional doctrine relative to chemical unions, is that which has reference to the operation of the influence which the presence of certain bodies exert on each other. This is called Catalysis. An example of it is found in the effect which spongy platinum exerts on hydrogen with oxygen, at a temperature in which no union could otherwise take place.

43. This catalytic action is supposed to be very common in the organic kingdom. The fermentive influence of yeast has been attributed to this power, because none of the yeast appears to be consumed in the process of converting the saccharine matter in a fluid into the alcoholic or acetous fluids.

44. Since it is demonstrated that the union and separation of ponderable matter cannot happen independently of the intervention of one or more of the admitted imponderables, analogy suggests that a higher order of union will require the aid of another and a higher order of imponderables. When one brute body combines with another, the presence or aid of an imponderable is always seen; it is either caloric, electricity or light, but such a combination leaves the product *brute* matter.

45. When a higher order of creation is worked out of brute matter, Nature employs not only the imponderables mentioned, but further calls for and employs the assistance of a higher element—Life.

LIFE.

46. Whether life be a distinct element, capable of union and separation from matter, and consequently of an independent existence, like the four imponderable or incoercible elements—Electricity, Light, Caloric, and Magnetism—or is only a condition to which matter is sometimes subject, I shall not stop to contest; for, on the one hand, if we consider life to be only 'a condition' of matter or a peculiar state of being of matter, we shall find ourselves puzzled at each step we take in the pursuit of physiology; but, if we contemplate the phenomena which take place in living matter, as the effect of an adventitious element acting on it—that is, look upon life as a *substance* added to matter, as we look upon light, caloric, electricity and magnetism in regard to matter, we shall be able to *formulize* physiology with some of that certainty with which physicians formulize any other physical phenomenon.

47. By possessing a comprehensible idea—as it were—a tangible one, regarding life, we are able to reason *sensibly* on the phenomena which living matter manifests, and thus discard whole libraries of metaphysical physiology, which is the soul, the essence, the basis of all medical discrepancies, and the bane of medical practice.

48. Captious persons and such as are wedded to their previous education may say, 'before you assert that life is a distinct element, accessible to and separable from matter, *show us some*.' This reply is easy, and is to be found in the analogies which belong to the four admitted imponderable elements. If this do not satisfy the stubborn, they can accept the assertion as they would any hypothesis in the absence of fact, and use it as a theory. In this way, they may get rid of that which is offensive to them, and at the same time acquire possession of an instrument wherewith to reason satisfactorily.

49. The early promulgation of the theory of 'the vacuum,' though denounced as a damnable heresy, was silently accepted by many of the faithful, because it afforded them a more easy mode of treating the subject of pneumatics than any other. The same as regarded the theory of attraction. Every body knew, long before the birth of Newton, when a body lost its support it fell to the earth; but no one was able to reconcile *all* the phenomena attendant upon the descent of the body until he said that it was due to the attraction of the earth—that the apple was drawn down—that if there were no power to *draw* it down it would remain where it was though unsupported. Now he could not *show* the *form* of this power; but once that the hypothesis was admitted, it became easy to reason upon the facts which accompanied it, and to declare what were its laws, and to calculate their force with exactitude. If the same credit be given to the hypothesis that life has an independent existence, it will afford facilities in the study of physiology which we shall seek for in vain elsewhere.

50. As far as our observation extends, we know

that all finite things are incapable of change by themselves; and when they are altered even in appearance only this alteration is the effect of something else which has acted on the body, or ceased to act on it. Therefore, when matter assumes a living state, or loses that state, it has necessarily received, or lost something, different from itself.

51. We must admit then, we know, that there is such an element as life; and that, like the other imponderables, light, caloric, and electricity, it has two states of existence, the *passive* and the *active*.

52. The passive state must be believed as a consequence of the active state, for this is subject to cease; and when the active state of a body ceases, that power which gave it activity, having departed from its abode, must find one elsewhere; for we know, by comparison, that what is will continue to be (15), for nothing can be destroyed; therefore,

53. Life has two states of existence—1st, the passive state, which, like that state of the other imponderables, is diffused in and around bodies—ambient about the surface of this planet, and perhaps a little way within its surface. 2d, in the active state, which is too patent to require elucidation.

54. There is no more impiety in this view of life than there is in the theory of attraction; for are they not both of infinite creation! and are they not means employed by Omnipotence? If life be not an instrument of Omnipotence, what else is it?

55. The active existence of life is only seen when it is combined with matter; and in this state it acts in obedience to laws which are invariable as are any of the physical laws.

56. In its marriage with ponderable matter it dissolves *almost* all the brute affinities which belong to ponderable matter, and produces a new being—a vegetable or an animal—possessed of properties, and subject to new laws which are very different from those which previously appertained to the materials out of which the new structure is raised.

APTITUDE.

57. There is an aptitude and affinity to union ever prevalent between certain combinations of ponderable matter and life. The moment a particle of such a combination is favorably disposed to combine with life (that it is moist and warm enough) it assumes a new form, a lichen or a zoophyte is created; so that the hypothesis of Malte-Brun is in truth more of a reality than a poetical assertion.

58. As an analogy of the aptitude of ponderable matter, when favorably disposed, to combine with an imponderable, we may look to the spontaneous detonation of the ioduret of ammonia. [It must be borne in mind that both these substances are abundantly obtained from living bodies.]

59. Mould, mucor, fungi, and lichens appear to spring to existence, under certain circumstances —[the three first in the dark.] It is asserted that all these bodies are the product of seed or sporules, in contradiction to the assertion of spontaneous birth, because they are seen to produce seed, or sporules which grow into their similars. But this argument will not bear a stricter scrutiny than that of spontaneous birth, for do not these beings die, and revivify? Even highly organised beings die, and revivify.

60. Examples of revivification, which is an analogous action to spontaneous generation. 1st, Will not a moss dry so as to be capable of being reduced to powder and be sifted, in which state can it be supposed to be living? an absolutely dry body to be living? Now this is a common occurrence to moss. It alternately dries for months at a time, when its growth is dull, and again is wetted by rains or dews when it grows again. So inversely of the ioduret; it dries to a certain point, at which it struggles for a time, receives an atom of caloric, and explodes. While the lichen is wet it grows; but losing its moisture it parts with life, and of course ceases to grow; but if again moistened, it regains life and grows again. These alternating states of life and death play with low organizations many changes. What occurs to the moss occurs to the fungus, which grows on decayed wood.

61. The same thing happens to the *eggs of some butterflies* deposited on the twigs of trees in high latitudes, where the most intense frost does not 'kill' them though it dries every atom of moisture out of them, in which state they may be kept for years, and resume life when exposed to moisture and heat.

62. This 'suspension of vitality,' or rather destruction of vitality, is even more remarkable in seeds. If they be dry the most intense cold will not injure them; but if they contain any moisture, and are exposed to cold in this state, it will expand by freezing, and as this expansion takes place in a great many parts of the seed, this last will be in consequence torn in its pacenchyma in so many places that, when it thaws, it will consist of many particles divided in part from each other like flour, though still contained in a common envelope; now it is well known that a seed, which is the ovum of a plant, will not grow if much injured in its texture—flour will not sprout. Besides the lacerating power of frost, the changes which the ice undergoes when it thaws are of a chemical nature, and tend to the saccharine, and are followed by the alcholic and acetous fermentations.

These remarks must be sufficient to refute the belief which some people have that seeds may remain many years a few inches under ground without perishing. It is in this way they attempt to account for the fields of mustard, clover, and even forests which suddenly spring up, after the arrestation, by fire, or the plough, of the previous growth.

63. If the seed be kept dry, it will sprout and grow as vigorously, after a lapse of thousands of years, as the wheat found in Egyptian mummies proves.

64. Not only vegetables die and recover life, but highly organized animals do the same as the Rotifera, may die and be kept in this state for years, and when moistened will quickly recover life. Some of the Aunelides will also act in this way as the Vibrio tritica, Gordious Aquaticus, or hair worm, and the Filliaria, or thread parasite, which infests the horse's eye.

65. Life acts on health like caloric. When caloric is added to an appropriate imponderable, it will vanquish the inertness of the latter; but to be able to do this it must, in the first instance, be in sufficient quantity to *saturate* the imponderable to a certain point, or else its power will fall short.

66. Examples. If a live coal, containing a large quantity of caloric, be brought into contact with a combustible, it will first part with so much of its caloric as will saturate the combustible to a certain point; after this is attained, if it has more caloric to spare, it will continue to impart a further quantity to the combustible, until the latter has reached the point of ignition. But if the quantity of caloric be less than these degrees, it will fall short of igniting its neighbor; and by having diminished its own quantity, that which remains will be inadequate to continue its dominion over the coal, and this also will cease to burn, or die. Having so saturated its neighbor and produced ignition, a new movement is

created in the latter—it has acquired life, and this, if in sufficient quantity, will feed on all the carbon within its reach, increasing in strength as it draws more food within its rapacity, increasing from a spark to a conflagration—from an atom to an oak—from an albuminous organic atom to a whale—to an elephant—to man. Such has been the progressive march of nature from the moment that organization was called out of chaos until now. And what reason have we to suppose that the creative fiat of God has ceased? None!

67. The quantity of life, as well as that of caloric, must therefore exceed a certain amount, or it cannot exceed the inertness of matter. Place a shovelfull of live coals on a cold hard floor—they will die; on a soft warm floor, they will not only live but give life to the floor;—on splinters of the cold hard floor, it will also enliven these, because the portion of dispensable caloric is sufficient for both parent and associate; a soft wood coal will not ignite *cold* gunpowder. In high latitudes, and in cold weather, the spark from a flint is not proportionably hot enough to ignate the powder in the pan of a gunlock.

For the Magnet.

CURIOUS PHENOMENON.

Dear Sir,—I noticed an article in the November number of your interesting work, taken from the "Winthrop Farmer," relating to Hair-Snakes, popularly so called. I had, for some time, been thinking of publishing my own observations upon the same subject, as I had never before seen any thing of the kind in any literary journals, or any where else.

Three years ago I had a *scarlet tanager* (fire bird) in a cage; and as it proved to be an *anti-Grahamite*, preferring an animal to a vegetable diet, I fed it principally during the summer months on grasshoppers, they being the insects most easily obtained. My boys were in the habit of putting them into an old tin pot with a cover as fast as they caught them, and often would have enough on hand to last the little pet a day or two.

On feeding him myself one morning on the last of the insects left in the vessel (they were all dead, from having been kept so long,) I was surprised to find at the bottom a large number of these worms. I had never before seen any, except in standing water. After this I took particular notice, and almost every morning I would find a greater or smaller number of the same species of *vermicelli*, and some of the grasshoppers would be dead. I also observed the same circumstance in relation to the common black or field cricket.

From these observations I infer, that this species of worm is not, naturally, a water animal; that whenever it is seen in water, a grasshopper or cricket has been drowned there; and that it escapes from the body of the insect it infests near the time at which that insect dies.

Query. Are these worms, then, necessary to the life and health of those insects? and if so, shall we hence infer that intestinal worms are necessary to the life and health of all animals?

E. G. WHEELER, M.D.

New-York, January, 1843.

New Remedy for Hydrophobia.—Dr. Heller, member of the Royal Academy of Medicine, (Paris,) lately communicated to his society, that in Greece it is the practice to observe the tongues of those who have been bitten by dogs, because at the end of eight or nine days there appears on each side of the tongue and near the upper part, pustules called lysses by the Greeks. These pustules contain the whole rabid matter, and they are immediately cut and the wounds cauterised, which prevents hydrophobia.

ANTHROPOLOGY.

MAN AND HIS DISEASES.

BY P. CUNNINGHAM, ESQ.

INFLUENCE OF HAIR.

The hair being the chief medium through which electro-magnetism is supplied to the human body, hence the superior hairy structure of man gives him a muscular as well as intellectual superiority over woman, whose silkier hair and downy covered skin precludes a sufficiency of electro-magnetism being received or emitted when great intellectual or muscular efforts are demanded. Indeed all women of powerful understanding or strength are remarked to approximate man in this respect, having a stronger hairy developement of face or body than the more effeminate portion of their sex, and from which, as relates to the face, they derive a greater advantage than man by their not pruning it down, and thereby curtailing its power of electro-magnetic introduction. The different colours and constitutions of the hair in different people must necessarily have an important influence upon the mind and the temperament, on account of the different proportions of electricity and magnetism which the above coloured hairs transmit, and the different rapidities with which they transmit them. In the woolly head of the negro, the Creator has drawn a distinct line of intellectual difference between the black and white races; for wool being a bad electric conductor, his brain is therefore supplied with but a bare electric sufficiency to make the mental line between him and the next order of animals broadly visible, while the abundance of straight regularly constituted hair over his body shows his corporeal powers to equal at least those of the white, inferior though his mental powers be. The curly state of his head hair is attributable, I conceive, to the above more difficult electric introduction, the electricity naturally twisting it about in the efforts to effect an entrance, and thus eventually regulating its form. If the negro race, therefore, are ever to be elevated much above their present state, it must be by submitting themselves to the tutelage of less woolly and curly heads than their own, as the better-haired Indians of Peru found it their interest to do with the golden-haired children of the sun, the value of whose hair they so highly appreciated as to endeavor to preserve it by severe laws prohibiting their incas intermarrying with any but the golden haired stock. Black bodies having a strong electric affinity, by means of which they transmit electricity more readily than any other species of colour; hence dark-haired people, as well as animals, are observed to be hardier than the white-haired, from their bodies being kept in a more equable temperature, in consequence of the readiness with which electricity can be acquired and parted with; while the tardy escape of it through the white hair, is apt to throw the body into an inflammatory fever when any violent bodily exertions are made. The black-haired race will thus, also, be enabled to rouse their mental energies and passions more suddenly and to a higher pitch of excitement, as well as to cool them down again more rapidly than the white-haired, who receiving electricity slowly, are slowly excited, and by also parting with it slowly, are slowly cooled.

The Celtic and other straight dark-haired races are therefore, I conceive, capable of excitement to higher pitches of intellectual energy than the Gothic fair-haired race; but then the electricity exciting these being as readily parted with as received, renders this excitement to be as easily dissipated as it was conjured up, preventing them thus from mastering any great object requiring a continued effort of the mind, like the fair-haired Goths, who, when once excited, can keep this excitement more steadily up, from the greater power they have of retaining the electricity on which it depends. As white hairs however, progressively grizzle the heads of the dark-haired man, his judgement and perseverance progressively increase also, until the white hairs gain too great an ascendancy over the dark; while the minds of the fair-haired are generally at the highest pitch of energy when middle age commences. A mingling of the blood of the two races must naturally, therefore, generate a cross breed blending the qualities of the two, and I believe it will be found that to this cross breed we are indebted for the greater portion of the highest works in literature, science and arts. On the Continent, the authors of the above have been principally born at no great distance on either side of the Rhine, where these two races have mingled most; the far north or far south on either side (except in Spain, from Gothic invasion) having produced few men to compare with the medium between, and even those few might be cross breeds. In England, nearly all the eminent men have been natives of the country south of the Trent, where the Celtic or Roman blood has been more intermingled; while in the northern parts, where the purer Gothic prevails, although there has been more general good sense, good judgment, and prudential peaceful behaviour than in the south, until of late years, when the greater Celtic intermixture in the manufacturing parts has engendered a more combustible spirit among them. Wales has produced no very eminent original genius; Ireland cannot boast of one with an initial of Celtic O' or Mac, and nearly all the Scottish men of note have Saxon names. While, however, the improvers of the inferior animals have already benefited them immensely by scientific crossings, the improvement of the first of all, man, has been left wholly to chance, by which his mental and muscular powers have not been advanced in proportion to those of the brute creation over whom he rules. Speaking more nationally, were the dark-haired Celts of the United Kingdom but whitened with a dash of the fairer Saxon, and the latter again embrowned with a dash of the former, a great improvement would be effected in both; the Saxon would have more life infused in him, and the Celt more judgement and prudence; the former would be less easily trodden upon, while the latter would be less easily excited by cunning and callous fair-haired demagogues to outrage and rebellion.

The effects of intense electric transmission causing an early whitening of the hair of those addicted to much mental thought, or in whose minds grief or anxiety have sown their cankering seeds, is curiously exemplified by the head hair of man insulated by the hat retaining its colour longer than the hair not so insulated; thus the hair upon the temples and other parts not covered by the hat becomes grey much earlier than that over the places covered by it: the hair upon the latter, however, falling off much sooner, on account of the electro-magnetism which retains it in vigour, and for whose transmission it was solely formed, no longer obtaining a passage in sufficient quantity through it. In woman, on the contrary, grey hairs not only make their appearance less early, but are nearly equally diffused, at the commencement of the blanching, over every part of the head; on account of their more porous and airy head-dresses admitting a freer electro-magnetic access to every portion of the head hair. But this is not the worst as regards man, for as reason leads us to believe that the brain is divided into different parts performing different functions, which parts must necessarily receive as well as emit the electro-magnetism on which their excitements depend through their immediate hairy coverings, so by the insulation (imperfect though it may be) of these cerebral parts, they will not only be prevented from attaining that puberty, if I may so term it, which they would otherwise have arrived at, but have their functions impeded and weakened whenever covered by the hat. Every man must have felt how much clearer his ideas flow when his head is uncovered than when his hat is on, which he instinctively finds necessary to lift up every now and then and give his hair a rub, in order to make them glide brighter and smoother along. Oily substances, by their electric attractions and magnetic repulsions causing electricity to prevail over magnetism in the bodies conducting the latter, hence the benefit which the hair derives by unctuous applications to it when it begins to dry up through long continued or intense electro-magnetic transmission, which, fitting it to be a better magnetic conductor than an electric one, enables it now to conduct in greater quantity the very substance eventually destined to effect its destruction.

Bodies are good conductors in proportion to the continuity of the particles: an iron wire being a good conductor, but the same wire converted into filings, a bad one, even when these filings are placed in a continuous row, so that many substances which attract electricity strongly may not be able to conduct it well on account of the want of continuity in their particles.

Dry wood, a bad electric conductor, which is converted into a conductor by being moistened, affords an exemplification of the superiority of moist hair over dry in electric conduction.

PHRENOLOGY.

The science of phrenology is of old date, though never attempted to be carried to the minuteness it is done now. We see that the ancients always moulded their heads in statuary and painting of that for which they perceived most nearly embodied the species of intellectual perfection they endeavoured to represent: a good head and a bad head, a poetical and intellectual one, having been long common expressions among artists, doubtless derived from observing that the more prominent qualities of the mind, were usually indicated by a particular mould of head. I had taken little interest in phrenology until proceeding with the present essay, when I saw that as electro-magnetism always occupied the surface of bodies, it must consequently occupy the surface of the brain, and that as according to the views into which I had been led, electro-magnetism was the immediate exciting cause of all the mental and corporeal functions, the cerebral superfices must therefore require an extension corresponding to the amount of the electro-magnetism it had to contain, or in other words to the amount of activity in these functional parts.

But as it is consonant to reason that distinct functions should have distinct portions of the brain allotted for them, hence these cerebral functional parts will necessarily require an extent of cerebral superfices, corresponding to the proportioned intensity of the action they are called upon to perform; for as

increase of healthy action operating upon any part causes an enlargement of that part, (as we see exemplified in the muscles,) so the increased activity of any particular cerebral function, by causing an enlargement in the superfices thereof, will necessarily cause also a corresponding enlargement in the cranial superfices covering it. As parts, however, yield readiest at the point where there is *least* resistance, so the skull therefore, will yield more readily in an *outward* than in a *lateral* direction, to a force pressing from within, and hence cranial projections will naturally be produced, corresponding to the form of the cerebral functional parts which they cover. Of this developement of cranial protuberances, even in manhood, I am well convinced by that of one in my own head, in the line of the sagittal suture, whose increase was for a time so rapid as to excite an uneasy sensation in the part, and which occurring at a period when my mind had been kept for a considerable time in constant agitation, in consequence of the deceptions practised upon me in a quarter where I had placed confidence, I therefore conceive the above enlargement must be some way connected therewith.

Nature indeed sufficiently pourtrays, in the head formation of those born with defective intellects, the truth of the general principles of phrenology, by the marked difference of cranial formation between these and the more favoured of the human race, as well as between the stupid idiot, and the crafty; the former having, almost uniformly, large puffy heads and faces, while the heads and features of the latter assimilate, like their manner, very closely to those of a monkey. Indeed I never knew even an approximation to a monkey form of head or feature, which did not indicate a monkey disposition—cunning, trickiness, revengefulness, callousness, all even to the minutiæ of muscular attitude and expression being developed in the person's conduct. Knaves, in fact, (as far as my observation goes) possess no natural intellectual developements that would ever be turned to high account by any course of schooling, however judicious, and therefore society would suffer no loss by a total extinction of the breed; but if you can only restrain the *increase* of their *noxious* developements, so as to make them less pestiferous, you will accomplish a great good; an aim which may hereafter be much assisted by the lights that phrenological science seems destined to throw upon the subject.

The common reproachful terms of thick-skull and big-head, have some foundation in reason; a thick skull necessarily retarding inflow and outflow of electro-magnetism to and from the brain, by the greater mass of substance it has to pass through; while a big head indicates a similar retardation somewhere, by which the electricity received is applied toward the cranial enlargement; which electricity being more generally applied to the enlargement of the *animal* than the *intellectual* portions of the brain—hence the general justice of the remark. It is, however by this enlargement that larger heads of the fair-haired race are enabled to compensate, for the tardier electric introduction into them, in consequence of the larger reservoir *within*, from whence they can draw electro-magnetism, without being always dependent upon *extraneous* supply. Those whose hair readily emits and receives electro-magnetism can better dispense, therefore, with large heads; but I think it will be found that men of great talents have almost uniformly large heads, storing up electro-magnetism, in order that, when occasions call for it, there may be enough at hand to prevent grand conceptions from being mutilated by a deficiency of supply from without.

NUTRITION.

The analysis of human food shows it to consist, generally speaking, of nearly equal proportions of oxygen and the inflammable matters, carbon and hydrogen; from which it might be inferred that magnetism and electricity must be attracted inwards through the skin, for the purpose of decomposing, or, in other words, of digesting it. Should, therefore, magnetism and electricity in equal proportions neutralise each other, no increase or decrease of temperature would take place in the human body from the digestion of the greater portion of the food made use of; this food requiring oxygen in excess over combustible matter to cool the body, and inflammable matter in excess over oxygen to heat it. Now as certain species of food and drink are heating, and others cooling, they must, I conceive, contain either mass-electricity in excess or mass-magnetism in excess, in order to produce these heating or cooling effects, because, during their decomposition, the mass-magnetism and mass-electricity which they contained would be in all likelihood set free from them in the atomic state, and thereby increase the body's temperature or diminish it according as either preponderated. But as electricity and magnetism in equal proportion may be capable of exciting the sensation of heat, and as a body which is the heaviest in the northern hemisphere may be lightest in the southern, so the conclusions relative to the above must remain in a great measure speculative until farther experiments enable more correct results to be drawn. That electricity and magnetism are attracted inwards through the skin to assist digestion is not only borne out by previous illustrations, but by our own sensations. When digestion is going on, we feel uneasy if our clothes are tight about us, consequently are instinctively led to slacken them, thus admitting the atmospheric air, and consequently the atmospheric electro-magnetism, to have a freer access to the skin. Again, hot drinks do not produce such lasting heating effects upon us as cold drinks, because the electric heat they contain passes only from *within* the body to *without;* while the cold drinks, on the contrary, attract their electricity from *without* to *within*, and as it will have to pass *outward* again, it will thus by the *double* course it has to pursue, increase the body's temperature for *double* the time at least that the hot drink can so increase it. The cold drink occasions a genial glow upon the surface the moment it is swallowed, at the very instant, in fact that the internal parts are chilled, which can be accounted for only by the rush of electricity through the skin.

Food, therefore, that supplies electricity in excess over magnetism to the human body (by whatever means it supplies it) must be heating food; and that which supplies magnetism in excess over electricity must similarly be cooling food; and as I have previously demonstrated that electricity in excess over magnetism tends to increase the solid contents of the body, and magnetism in excess over electricity to diminish them, so therefore electricity must excite the recrimentitious vessels of the body to action, viz. the vessels *increasing* the solid contents thereof, and magnetism the excrementitous vessels or those *decreasing* the said solid contents; consequently the equilibrium of the bodily solid contents being kept up by the equilibrium maintained between these two classes of vessels, a preternatural action in the first must tend to an *increase* of these solid parts, and a preternatural action in the second to a *decrease* of them.

The recrimentitious vessels, as I have previously exemplified, are characterised by the coloured tints of the fluids which they convey, and the excrementi-

tious by the pale tint thereof; corresponding in fact, in opposition of colour, to the opposite nature of the bodies (viz. electricity or magnetism) chiefly abounding in them. Animal food being heating, therefore it must be an electric or recrementitious food; while acid fruits being cooling, they must consequently be excrementitious. Thus animal diet is of a constipating and fattening nature, while acid fruits are laxative and impoverishing; and hence the prevalence of excrementitious bowel complaints during the fruit season: complaints, no doubt, of a sanative nature, in the first instance, tending to check the previous excessive recrementitious action engendered during the hot season, but which frequently end in a diseased or excessive excrementitious action of the intestinal excretories.

Digestion being simply a galvanic decomposition of the ingredients taken into the stomach, food will consequently be digestible, or, in other words, decomposible, in proportion to the weakness of its constituent affinities; and hence, what are called indigestible substances are made more easily digestible by being kept until their constituent affinities are weakened by incipient putrefaction. Salt, sugar, alcohol, and the bitter principle are all fattening substances, therefore their action must be electric or recrementitious; while vegetable acids are impoverishing substances, and consequently their action must be magnetic or excrementitious. Yet the above substances, wheter electric or magnetic, are equally capable, in large quantities, of preserving from galvanic decomposition, or in fact of rendering indigestible every species of animal or vegetable matter to which it may be applied; while again small quantities of them render the above more decomposible or digestible than if none had been used at all; a circumstance well known to cooks, who frequently sprinkle with salt, or dip in vinegar, flesh and fish previous to being cooked, with a view of making them tender, a fact indeed which our own feelings convince us of by the necessity we are in of taking a moderate quantity of spirits, salt, sugar, or vinegar with what we eat, to render its digestion more easy. Too much of any of the above, we see, therefore, must impair digestion, and hence the injurious consequences of using any of them in excess. The greater portion of human food being (as I have previously remarked) constituted of nearly equal parts of oxygen and combustible matter, it may therefore be supposed to contain nearly equal proportions of electricity and magnetism in chemical union with its particles, so that it would seem to require a small excess of either the one or the other to facilitate its decomposition, and hence the utility of the electric and magnetic substances supplied by the internal viscera for the purpose of digestion; the gastric juice being an acid and consequently a magnetic substance while the bile is bitter, and the pancreatic juice sweet, showing these on the contrary to be electric. The food seems thus destined to undergo two species of galvanic processes before being resolved into nutritious chyle, that in the stomach being probably assimilated to what is called the acetous fermentation, from an acid or magnetic substance being the cause of it, and that in the small intestines to the spirituous fermentation from the cause of this being an electric substance. The first process of digestion should be of a magnetic nature seems evidenced not only by the conclusion we may draw from the primary acid action upon food in the body, but from analogy by what we see take place in food out of the body, when left to the decomposing galvanic influences of the atmosphere. Thus both animal and vegetable matter becomes gradually putrescent when so exposed; the offensive odour which it exhales showing the magnetic action going on, from all excrementitious matter possessing an offensive odour, doubtless from the magnetic excess therein, as well as from electric inflammable substances, such as charcoal, quickly dispelling this odour, evidently by their electricity neutralising the magnetism of which the above odour is constituted.

Thus a healthy digestion, and consequently nutritious process, must depend as much on a due portion of acid or magnetic matter being secreted by the stomach, as on a due portion of bitter or electric matter being secreted by the liver. Hence, in post-mortem examinations of many diseases the bile is found to be insipid, and in some of the most malignant, such as cholera, altogether wanting. Bodily health must therefore be in a great measure dependent upon the capabilities of the above secretions to excite the requisite galvanic action in the food, from which the chyle is to be extracted, for the excrementitious and recrementitious purposes of the body. In youth recrimentitious action has the ascendency over the excrementitious, because the bulk of the body must not only be sustained, but further increase made thereto. In manhood again, the health is best when they are equal to each other; corpulency ensuing from the ascendancy of the one, and emaciation from that of the other; while in old age the excrementitious action gradually gains ground until the body is wasted to feeble decrepitude, and life eventually extinguished. Were all this left solely to chance, the animal body would soon be destroyed by the alternate, powerful, electric and magnetic actions to which it is subjected; but it is one of the most beautifully harmonicus of nature's laws, that when electric action is carried to excess, the appetite's cravings are for magnetic food and drink, viz. fruits and acids; while when magnetic action is carried to excess, electric food and drink, viz. salted or peppered substances, are on the contrary craved for, so that the equilbrium of action in the system is not only thereby preserved, but the very cravings of the appetite made to designate the species of action that prevails. Thus, after a dinner party, if electric action is in excess, cooling fruits and drinks are craved for; but if magnetic action be in excess the craving is for salted or well peppered food, and stimulant beverage; the same holding good in youth, when the electric is the prevailing action, and in declining life when the magnetic is so: cooling fruits being more generally relished in the one and heating regimen in the other.

When the acid juice of the stomach is insufficient to complete the acid fermentation in the food before its passing into the intestines, the above acid fermentation will consequently go on in the latter, thereby giving a tendency to bowel and other excrementitious complaints To insure bodily health therefore, food should not only be taken in moderation, but well masticated before being swallowed, so as to admit of a speedy and equable fermentation taking place throughout it. Vegetable acids in moderation are useful when the gastric juice is deficient, and bitters when it is too abundant, the first assisting the deficiency of acid fermentation, and the second checking the excess of it, each, however, in excess counteracting the galvanic action of the gastric action, or, in other words, the digestive powers, by acting as preservatives (as before illustrated) to the food. Persons are found to require, generally speaking, food and drink in proportion to the mental or bodily labours to which they are exposed, which requiring an increased amount of electro-magnetism to carry them on, consequently require an increased demand of food and drink to supply that electro-magnetism to the mind and the

body—the above law, though generally applicable, being subject of course to exceptions. Men, therefore, that think hard, or work hard, require a greater amount of food and drink to keep the body in health than the thoughtless or the lazy; the smaller the amount however of the above supplying the requisite electro-magnetism, the less injurious to the constitution on account of the excrementitious matter to be evacuated being less. It is thus that excess in eating is infinitely worse than excess in drinking, though both are sufficiently deleterious; the medium being of course the best when the body is never over excited by excess, or enervated by a deficiency of requisite stimulus.

It is curious indeed to contemplate the different effects of the excitement of wine upon a thoughtful and a thoughtless man—the electricity evolved being principally directed toward the head in the first, while in the second it is equally divided between the head and the feet, so that though the thoughtful man may be striking out the most sublime conceptions, his legs may be unfit to support him; while the thoughtless, though walking with a firm and steady step may not have an idea brooding in his head to break through the foggy atmosphere within. Pitt, Fox, and Sheridan, delivered, it is said, some of the ablest speeches ever heard in the British senate, when they could with difficulty stand upright. Indeed a thinking man is, at all times, an unsteady walker, being liable to trip at every stone, or to be pitched off his perpendicular by even the slightes push, for having less electricity in his heels than his head; while the less thoughtful trips nimbly along, without a stumble, from having more electricity in the former than the latter.

That the greater portion of the food and drink made use of is serviceable only so far as it attracts electro-magnetism through the medium of the skin, for the supply of the mental and bodily wants, seems borne out by the diminutive dimensions of the thoracic duct, the sole channel through which the whole of the nourishment extracted from the food is conveyed into the blood; its small crow-quill size seems quite inadequate to convey above a tenth of the substance of the food and the drink, daily swallowed, into the circulation, showing consequently the small portion required for nutrition, in proportion to that for electro-magnetic purposes. Could any substance in smaller compass therefore be discovered capable of furnishing the requisite electro-magnetic supply, not only would better health be enjoyed, from diminishing thus the amount of the excrementitious mass to be expelled from the body, but a greater amount of population would be capable of being sustained in a given space, from the diminution thus made in the amount of food consumed. The Peruvian Indians, for this purpose, chew the leaves of the cocoa shrub with an alkaline cake made from the ashes of a tree, and by means of the juice swallowed from a few mouthfuls of this daily, are enabled to perform the most extraordinary labours, with scarcely more besides than the substance of a good English meal a weak; enjoying at the same time a state of robust health not generally found among the solid food-eaters of Europe. Were some such substances as the above but generally made use of for furnishing the body with electro-magnetism, how many more extra millions might not the earth be made to maintain, with less risk of their numbers being thinned by the multitude of diseases to which the present diet gives rise. All the substances composing human diet remaining undecomposed when closely excluded from the atmosphere; hence it is evident that their decomposition, in the digestive organs, cannot be owing to causes within the latter, but to causes existing in the atmosphere, indirect though the communication may in this case be; for if the food previously attracted, the electro-magnetism decomposing it from the body, the latter must eventually replenish its loss from the atmosphere.

The idea of the sensation called heat being produced by the motions and not by the amounts of atomo-electricity and atomo-magnetism, seems strongly borne out by this sensation being often experienced when the mercury in the thermometer is contracting, and that of cold when it is expanding, showing that the decrease of heat, or increase of cold in the atmosphere, produced no decrease in the one case, or increase in the other, in the sensations which they respectively excite.

GROWTH AND DECAY.

On man being thrust naked from the womb, a new world is opened before him. That nutrition hitherto drawn from the mother's internal uterus, and *directly* introduced into his circulation, is now drawn from her external mamma, and *indirectly* introduced through the medium of his own digestive system; while his blood formerly purified by the lungs of the mother, is now purified by his own. The dark juicy softness of his hair rendering it a good electric conductor, thereby enables the recrimentitious action hitherto going on to be maintained; while the increase of the excrementitious secretions, and the occasional vomitings induced when growth proceeds too fast, by checking the latter, thus tend to check the formations of imperfect structure in the body. When, however, this growth still progresses too rapidly, the intense electro magnetic introduction by which it is sustained frequently blanches the hair of pale colour, thereby moderating the intense electro-magnetic excess, and consequently the too rapid growth of the body; reverting usually however, to its former color toward the period of adult age, when the electro-magnetic introduction through it is diminished, from the body's growth being perfected.

As puberty aproaches the generative parts become gradually covered with hair, and as soon as there is enough to transmit a sufficiency of electro-magnetism to excite the seminal and menstrual secretions, these secretions are poured forth and man enters into a new state, his beard now budding rapidly forth, and new passions taking possession of his breast, thereby effecting a complete revolution in his ideas, and consequently in his conduct

The long continued electro-magnetic transmission, by rendering hairs drier and harsher, consequently diminishes eventually the amount of electric transmission, while increasing that of the magnetic, until the two actions become eventually equalised, and thereby terminate the growth of man; the same transmission, however, by the gradual change thus effected in the hair, at length enabling the magnetic transmission to gain upon the electric, until the former so far prevails as to gradually blanch by its action the color of the hair which conducts it. Excrementitious action would consequently now be more powerful than recrimentitious, and the body thereby made to decrease in bulk, did not nature prompt to counteract this, by increasing the stomachic call for stimulating regimen, by which the body's bulk and activity is for a longer period preserved. In youth, cooling acid fruits are craved for, because the recrimentitious process greatly exceeds the excrementitious, and so rather requires restraint than encouragement; but as white hairs make their advances, nature prompts a gradual advance in the stimulating nature of man's regimen; the one cup that would

have intoxicated before, being now no longer sufficient to keep up his animal spirits or his body's bulk, and consequently requiring the number to be increased for the due sustainment thereof.

As new hairs, however, continue to be blanched, and the old ones to be ejected by the excessive excrementitous action in them, the electric stimulants had recourse to are at last no longer able to contend against the overwhelming magnetic introduction, all the softer parts now progressively decreasing in activity, heat, and bulk, until the magnetic influence eventually so far exceeds the electric as to extinguish vascular action; when the soul or mind, the supreme director of all the electric energies of the brain, takes its flight to render its account to the Being who installed it.

That white hairs are the cause of old age, and not old age the cause of white hairs, is a theory, I conceive, fully borne out by the laws of electro magnetic action, by a constancy of which it eventually pulls down the very parts it built up, if no counteracting influence places it in check. In identifying electro-magnetism with life, and the mind with the soul, I have differed as respects the latter point from the impression somewhat entertained, founded upon the deduction, that as the mental functions are so imperfect, the soul, being a perfect body, could not be consequently identified with the mind. Conceiving, however, the soul to be the supreme director of all the functions, both corporeal and mental, and that the human form is but a piece of animated mechanism, if any portion of the latter should be rendered imperfect through casuality during its construction, it would be as unjust to blame the Director of it for not producing perfect results, as it would be to blame the director of a piece of man's handicraft mechanism, for not producing perfect work, when any portion of the above was imperfectly constructed at the outset, or impaired in after times.

NEUROLOGY.

THE NERVOUS SYSTEM.

The following paragraphs are from the Parisian work, from which we have before drawn so largely, written by a lady, and published in 1835. We have at command, one of the best works ever written, probably, on the science of Human Life, in which we find the most clear and satisfactory account of the nervous system we have seen, and which we design to lay before our readers in due time. These extracts form the concluding notes to the Parisian work, above named.

The "Exposition of the Natural System of the Nerves," published by that most acute of physiologists, Charles Bell, in 1824, has shewn that the operations of sensation and motion are not carried on by the same part of a nerve, and that the nerves form *four* different systems in the body. And first with respect to a texture of a nerve;—"It is," says Mr. Bell, "a firm white cord, composed of nervous matter and cellular substance; the nervous matter exists in distinct threads, which are bound together in the cellular membrane; they are supplied with arteries and veins, and derive their sensibility from the blood. A nerve then consists of distinct filaments; some serve the purpose of sensation, some of motion, and some go to the muscles of respiration. The same filament does not serve two purposes." Mr. Bell asserts, "a great part of the nerves are not single nerves possessing various powers, but bundles of different nerves the filaments of which are united for the convenience of distribution, but yet as distinct in their office as their origin; that the perception of an idea depends on the part of the brain to which the nerve is attached, and that the functions of the cerebrum and cerebellum are different."

As to the division of the nerves Mr. Bell states that, "Besides the nerves of vision, smell, and hearing, four different systems are distributed through the body, namely, those of sensation, voluntary motion, and respiratory motion, and those which, neither conveying sensation in the ordinary meaning of that term, nor volition, nor causing respiratory action, unite the body into a whole, and are essential to *nutrition*, and generally to animal existence." Mr. Bell describes the spinal marrow as being composed of six columns—three in each lateral portion; an anterior column, which is the function of voluntary motion; a posterior column for sensation, and a third between them for respiratory functions. (The division of the nerves into four systems, instead of two, which I had adopted from Bichat's "Physiology," does not in any way affect my subject of discussion.)—It seems that the regular nerves are double; i.e., contain filaments for the purposes both of volition and sensation; but there are irregular nerves, which are superadded to these, and which are single in their root and in their operation; two of these must be united in their course or final destination to cause both sensation and volition. It is of importance to know that the nerves of the brain are single, except the fifth, which is the sole nerve of sensation for the face—for if the seventh pair, which is allotted only to motion, be divided for the tic douleureux, it will produce loss of motion in some parts, causing deformity, without the desired object, viz. destroying sensibility.

Mr. Bell has shewn that the ganglions were necessary appendages to the roots of all the nerves whose office is to bestow sensibility. He shewed that thirty-one nerves went off in regular succession from the brain and spinal marrow, similar in their composition and in their functions; that each had two roots; one bestowing the power of motion, and the other sensibility; that the *tractus motorius* was a column extending from the origin of the third nerve to the spinal marrow, and that all the nerves that went off from it were muscular nerves. He proved that the fifth pair of nerves was the source of sensibility to the head and face, and to all the interior parts of the head; that the two nerves to the face were different in functions, one being a branch of this fifth, and therefore the nerve of sensibility; and the other a nerve without a ganglion, or muscular nerve, and by decisive experiments, he proved that when the one was cut, sensation was taken away, and when the other was cut, the parts were deprived of motion.

At the time that I wrote this Essay (begun in 1818), my conviction that any surmises respecting the existence and electric nature of a nervous fluid would be treated as visionary, made me fear to let them see the light. My expectation that new discoveries would tend to remove this prejudice has since been realised; but my anticipations will doubtless share the inglorious fate of prophecies made after the event: it has, however, given me courage to make them known. The French physiologists, Messrs. Prevost and Dumas, have expressed their opinion, supported by a number of delicate experiments, that muscular contractions result from the action of a *nervous fluid*, which, if it be not the electric fluid, possesses at least the same properties, and the analogy that exists between the phenomena of secretion and those produced by the action of an

electric pile is, they say, very remarkable: for when an electric current traverses a liquid containing salts and albumen, serum for example, an acid will be produced at one end of the pile, and an alkali at the other; and the animal substances the liquid contains change their natures. Now this is precisely what takes place in the organs of secretion; though secreted entirely by the blood, the liquid these organs contain differ from it in their chemical properties. —If it could be ascertained that some organs acted as the positive, and others as the negative pole of the electric apparatus, many exceedingly remarkable phenomena could be easily accounted for, they say; "but of this," says Mr. Milne Edwards, in his excellent elementary work on Physiology, "proofs have not yet been obtained. The recent experiments of Mr. Becquerel on the influence of electricity upon the vegetation of plants, support the opinion at present entertained by physiologists, that the nutritive, as well as the muscular movements of the living body, are carried on by a nervous influence analagous, and perhaps identical, with the physical force that produces the electro-chemical phenomena." To these surmises I can now add the fact, that the hand of a remarkable personage (of the name of Molteno), now operating in Paris, pours forth *electricity*, which being, as it appears, modified in the human frame, cures by friction all diseases caused by a deficient or irregular action of the nerves. The remarkable power of imparting an electricity thus adapted to the human constitution enables him to restore the equilibrium of a disordered nervous action; to renovate the capability of moving to limbs completely paryalyzed; to relax contracted muscles; to impel the blood in its proper direction, and to impart the strength that results from a sufficient supply of nervous energy, or, I should say, of nervous fluid.

In tracing effects to their causes, I would ascend another step, and hazard a conjecture on the nature of elec ricity itself; but the subject being still more remote and obscure, the hypothesis is presented with even more diffidence. The element of *fire*, the only element which, it should seem, remains in its perfectly pure state, appears to me, in its various *known* forms of light, heat, and electricity, to be matter in its subtlest state, producing its phenomena by the laws of *gravitation reversed*—its distinguishing attribute being that, while all other matter tends from the circumference to the centre this tends from the centre to the circumference—but with a velocity, and, consequently, a force immensely superior to gravity —which can perhaps be calculated by the time which the sun's rays take in reaching the earth, viz. eight minutes.

Whatever phenomena seem to oppose this explanation result, in my opinion, from the attraction of the two electricities for *each other*. On this point I would add the conjecture, that one object in the existence of *two* electricities (the combination of which is required to produce caloric) is to allow an element so dangerous from its force to remain latent when in a divided state. This appears to be an indispensable precaution; for it is evident that fire exists in all bodies, and though the causes which draw the particles of matter towards each other are in constant operation, were an impulse so far exceeding them in power permitted to act in a contrary direction without restraint, the decomposition of the material world would ensue.

* * I do not consider the mind as an assemblage of powers or ideas, but as an unknown essence, *possessing* powers, and perceiving the impressions made upon it; in like manner, as matter is not an assemblage of properties, but a substance *possessing* properties and qualities, which, I will here observe, are quite opposite to those exhibited by the immaterial principle—a sufficient reason, among many others, I should have thought, to have preserved us from materialism; for if we give the name of matter to that which is tangible, inert, divisible, and cognisable to the senses, why give the same name, and consider as the same principle, that which is distinguished by possessing the *reverse* of these qualities to that which differs from it in its *very essence*—i. e. in its existence of *solid* particles, by which solidity it can produce a conclusion on the senses that reaches the mind, and there makes its presence known? Why, may it be said, cannot the qualities that we ascribe to spirit be *superadded* to matter? But how are we to *superadd* qualities which are of a contrary kind—activity to inertness, for instance? How are we to add the power of commencing a movement to the incapability of moving without an impulse, which impulse must at last be traced to an independent power—and this power, which can overcome the inertness of matter, can it belong to an inert substance?

MISCELLANEOUS.

Evolution of Light in the Human Subject.—It was ten day's previous to L. A.'s death that I (Sir Henry Marsh) observed a very extraordinary light, which seemed darting about the face and illuminating all around her head, flashing very much like an aurora borealis. She was in a deep decline, and had that day been seized with suffocation, which teased her much for an hour, and made her so nervous that she would not suffer me to leave for a moment, that I might raise her up quickly in case of a return of that painful sensation. After she settled for the night, I laid down beside her, and it was then that this luminous appearance suddenly commenced. Her maid was sitting up beside the bed, and I whispered to her to shade the light, as it would awaken Louisa. She told me that the light was perfectly shaded: I then said, "What can this light be which is flashing on Miss Louisa's face?" The maid looked very mysterious and informed me she had seen that light before, and it was from no candle. I then inquired when she had perceived it; she said that morning, and it dazzled her eyes, but she had said nothing about it, as ladies always considered servants superstitious.—However, after watching it myself half an hour I got up, and saw that the candle was in a position from which this peculiar light could not have come, nor indeed was it like that sort of light; it was more silvery, like the reflection of moonlight upon water.

I watched it more than an hour, when it disappeared. It gave the face the look of being painted white and highly glazed, but it danced about, and had a very extraordinary effect. Three nights after, the maid being ill, I sat up all night, and again I saw the luminous appearance, when there was no candle, nor moon, nor in fact any visible means of producing it. Her sister came into the room and saw it also. The evening before L. A. died, I saw the light again, but it was fainter, and lasted but about twenty minutes. The state of the body of the patient was that of extreme exhaustion. For two months she had never sat up in bed.—Many of her symptoms varied much from those of other sufferers whom I had seen, but the general outline was the same.—Her breath had a very peculiar smell, which made me suppose there might be some decomposition going forward. The young lady about whose

person these luminous appearances were manifested I had seen several times before her return to the country; her lungs were extensively diseased; she labored under the most hopeless form of pulmonary consumption.—*London Medical Gazette.*

Extraordinary Discovery.—At a late meeting in Manchester, of the British Association, the following facts were communicated by Professor Bessel, said to have been discovered by Professor Moser, of Konigsburg:

"A black plate, either of horn or agate, &c. placed below a polished surface of silver at a distance of 1-20 of an inch, and remaining there for ten minutes, the latter receives an impression of figures, &c. engraved on the former which may be rendered visible by exposing the silver plate to vapor, either of water or mercury, &c The image made by the camera obscura may be projected on any surface whatever, (glass, silver, a smooth cover of a book, &c.) without any previous preparation; and these will produce effects of the same kind as those observed on a silver plate covered with iodine. Vapors of *different* substances are of *equal* effect (without pretending that the effect will always be permanent.)

"The wonderful, secret and silent operation takes place at mid-night as well as at mid-day, in the dark as well as in the light. There on the silver surface, the picture is becalled into sight, by a breath. Can this be photography? The image is of the same character and as perfect as that of the early daguerreotype: but it is produced as well in the absence of light; and therefore Sir W. Hamilton suggested facetiously, that as a distinction it be termed Scotograph. But Sir J. Herschel asked, might it not be termography? He had obtained impressions at the heating end of a spectrum beyond the extreme red ray!"

Hydrophobia.—The Buffalo Commercial contains the following rules, which are extracted from the Paris papers under the auspices of the "Committee of Salubrity." They may not be out of place in this latitude.

1st. Any person bitten by a mad dog or any other animal, should immediately press with the two hands all around the wound, so as to make the blood run freely and extract the saliva.

2d. Wash the wound with a mixture of alkali and water, lye, soap, salt water, urine, or even pure water.

During the time of washing and pressing the wound, warm a piece of iron in the fire, and apply it deeply to the said wound. Mind that the said piece of iron is only heated so as to cauterize—that it must not be red hot.

These precautions being well observed, are sufficient to preserve from the horrid effects of hydrophobia, and every one should keep them in their mind.

Healthy Residence.—There is no circumstance connected with health concerning which the public are in my opinion, so ill informed, as the requisites of a healthy residence, both as regards local position and internal construction. In this Island we have chiefly to guard against humidity, on which account our houses should not be built in low, confined situations, nor too near water, especially when stagnated, and still less, near marshes. Neither should a house be too closely surrounded by trees or shrubs. Trees at some distance from a house are both an ornament and an advantage, but become injurious when so near as to overthrow it, or prevent the air from circulating freely around it and through its various apartments. The atmosphere of a building overhung by trees, or surrounded by a thick shrubbery, is kept in constant humidity except in the driest weather; and the health of the inmates rarely fails to suffer in consequence.—*Sir James Clarke on Consumption.*

Microscopic Phenomena.—Grains of sand appear of the same form to the naked eye, but seen through a microscope, exhibit different shapes and sizes, globular, square, and conical, and mostly irregular; and what is surprising, in their cavities have been found, by the Microscope, insects of various kinds. The mouldy substance on damp bodies exhibit a region of minute plants. Sometimes it appears a forest of trees, whose branches, leaves, flowers, and fruits, are clearly distinguished. Some of the flowers have long white transparent stalks, and the buds before they open, are little green balls which become white. The particles of dust on the wings of the butterfly, prove by the Microscope to be beautiful and well arranged little feathers. By the same instrument the surface of our skin has scales resembling those of fish; but so minute that a single grain would cover 250, and a single scale covers 500 pores, whence issues the insensible perspiration necessary to health; consequently, a single grain of sand can cover 125,000 pores of the human body.

The Man without Arms.—At Harrington's Museum in this city, there is a man on exhibition, the singularity of whose appearance, without arms, strikes the visitor with strange sensations. But being minus the upper extremities, does not by any means, constitute the whole curiosity of the show. He uses his toes with about as much facility as common people do their fingers, and far more industriously than some make-weights in society, since he earns his own living. Mr. Nellis, the unfortunate individual, now about 22 years of age, is a native of Pennsylvania, and thus far has succeeded in obtaining an honest income by exhibiting himself. This is perfectly justifiable, since there is no other mode by which he could procure the necessaries of life. With his toes, surprising as it may appear, he readily *handles* a pair of scissors, shaves himself, writes, and to crown the list of improbabilities, performs delightfully on the accordion. This is only another evidence in the long chain of proofs that might be adduced, to show the extraordinary capabilities of certain muscles, when regularly trained to the performance of vicarious labour.—*Boston Medical Journal.*

Society of Antiquaries.—On Thursday evening, Mr. Godwin, jun., drew the attention of the Society to the fact, that many stones, both inside and outside various ancient buildings in England, bear a peculiar mark or symbol evidently the work of the Freemasons. Similar marks are found on French buildings, and Mr. Godwin exhibited a series of diagrams, showing the similarity which exists between those of the two countries. Gloucester Cathedral, Furness Abbey, Cheethams Peirre, at Poitiers, in France, and the Radegonde in the same city, were among the chief examples.

Benefit of a Potato Diet.—A potato diet is found greatly to improve the quality of blood. Hence roasted or baked potatoes are successfully employed as a specific against the sea scurvy, when other remedies have failed. This discovery was made in France. It is singular that boiled potatoes do not have the same effect.

THE MAGNET.

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PATHETOLOGY.

For the Magnet.

WHAT IS IT?

BY W. B. FAHNESTOCK, M.D.

Dear Sir,—In the January number of your very interesting work, the Magnet, I observed, under the head "What is It?" some remarks respecting the various ways in which different persons are affected by what you denominate *Pathetism.* I some time since, in answer to Dr. Mitchell's report, published in the "Lancaster Intelligencer," gave my views of the cause why different persons exhibited different phenomena whilst in the somnipathic state; and I now take the liberty of sending the same to you, in answer to some of your queries respecting the same phenomena. I have, up to this date, pathetised about ninety different individuals, of various ages, temperaments, &c. and have had but ten, out of the whole number, whom I considered completely in a state of somnipathy.

It is generally expected, that every person who is said to be in this state, shall exhibit the same phenomena. This is true, so far as the state is perfect; but it must be remembered, that all do not enter this state perfectly, and that there is such a thing as a partial state, in which only one, two, or more of the senses are subdued at the same time, whilst the rest remain in their natural state, and of course cannot exhibit the peculiar phenomena which always occurs when such senses, &c. are truly pathetised.

I have had several in a partial state, who were unable to open their eyes, or move a limb, contrary to my will, yet they could not see; heard all that was said,—had feeling, taste, smell, &c., and yet, when the organs of the brain were touched, they would describe the feelings as they came on, and said they were almost irresistible, viz.: when I excited the organ of wit, they would laugh, and say, "I do not know at what I am laughing, yet I can scarcely restrain it," &c.

Another case. A young lady, whom I have pathetised several times with the same results, appears to be in a semi-sleep, and whilst in that state, hears no one, is insensible to pain, yet with her eyes bandaged will imitate me, or place her hands and fingers in every possible position in which I may choose to place mine;—yet not a single organ of the brain can be excited. When an attempt is made by others to touch her, she shrinks from them; and as soon as she is spoken to by me, wakes up, even at the first word addressed to her,—remembering nothing that has passed, nor aught that she has done. Her waking up does not destroy the effects of my will, for I can make her raise her arm, contrary to her own will, although she is looking at it and endeavouring to resist its elevation, &c.

In these cases, the sense of seeing was not affected; and when this is the case they cannot see, and this is the reason why some do not see as well as others, although to all outward appearances they are sound asleep.

I have had others, on the contrary, whose sight was pathetised, and who described and named things and persons both in and out of the room correctly, of which I myself, nor any other individual in the room, had the slightest knowledge; and yet they could hear, had feeling, and were conscious of all that passed around them.

Sometimes the memory is not pathetised, as in the above case, and when this is the case, they remember all that has passed, when they are relieved. The same is the case with the sense of touch, feeling, sensation, taste, smell, or with every other sense, organ, or faculty, which is not under the operator's influence.

The above statement of facts in relation to a partial state of somnipathy, I think go to show, conclusively, the reason why all do not exhibit the same phenomena, independent of their natural dispositions, and will enable those who are interested in the science to explain many things which were before considered discrepant. I ascribe all the failures which have taken place in Clairvoyance, and what you call Cephology, to an imperfect somnipathic state, which is caused, either by the disposition of the subject at the time of entering this state, or to a natural or constitutional wakefulness of certain senses, organs, or faculties, &c.

I will mention another case here, which induces me to believe that there is a sense independent of the sense of touch or that of feeling pain—which, for sake of distinction, I have called *sensation.* The case is that of a young lady, of a nervous sanguine temperament, who, when touched by other persons whilst in a state of somnipathy, experiences no sensation, although she says she sees them touch her. This is a remarkable case, and is, unquestionably, different from those who have a fine sense of touch, although they have no feeling of pain. She, too, possesses an exquisitely fine sense of touch, and can distinguish any number of articles placed in her lap, and return them to their right owners. She is insensible to pain also, yet feels no sensation when touched by others.

Lancaster, Pa. Jan. 17, 1843.

PATHETISM.

BY JOHN KING, M.D.

Dear Sir,—Allow me, through the columns of your valuable journal, to continue an account of cases under my care, which may probably prove useful to those engaged in advancing the sacred cause of Pathetology.

1. A case of St. Vitus's dance, of some thirteen years' standing, and which has been unsuccessfully prescribed for by physicians in this country and Europe, has for several months past been treated by pathetism, and I am happy to state, that the patient is now entirely cured. About three months since, this patient was so far recovered, that, except when laboring under great excitement, no diseased motion was observable, and I confidently looked for a speedy cure; my anticipations, however, were not so soon realised. One day in the latter part of last October, this lady was attacked with what appeared to be an acute inflammation of the right eye. I pathetised her for it, as had been done successfully at several previous times, and left, expecting to find her as usual on my next visit; but I was disappointed. I found her in great pain in the right side and limbs, which were, to all appearance, completely paralyzed. With some little difficulty I placed her in the somnipathic state, and, strange as it may appear, pathetism had not the slightest effect upon the paralyzed side. This singular state lasted for three days, when it terminated in acute rheumatism of the whole side and of the brain; the pain in this last organ being situated in that portion in which firmness is located, and so severe that delirium was the result.

Notwithstanding the vast amount of benefit this lady had derived from pathetism, her friends, alarmed at this new affliction, became very much opposed to a continuance of it, and wished her to engage another physician, or have me prescribe medicines and omit pathetising her; but, in her intervals of sanity produced by pathetism, she would not hearken to them at all, as she had already been nearly ruined in health, for life, by the various medicines at different times prescribed for her. I regret that I must also state, that an operator here mentioned to some of her relatives, that she had been pathetised too long, that pathetism had produced this other disease, and that it was dangerous to be pathetised for so long a time. In consequence of this, all her relatives, with two or three exceptions, used all their influence against me; yet, notwithstanding, I determined to make them bow to and acknowledge the power and efficacy of pathetism; and I succeeded—the lady being, at present, free from both diseases, and enjoying good health.

The pain in her head was so severe, that several times it completely awoke her from a state of somnipathy; and on one evening, it awoke her thus five times in the course of half an hour, though, ordinarily, no noise or pain, as far as known, would have produced such a result. Whenever this delirium attacked her, I was uniformly summoned, and always succeeded in placing her in a calm sleep in about five minutes, and this was repeated so often and so invariably, that at last her friends became satisfied, that a disease of such severity could not be *produced*, and likewise *removed*, by the same cause;—and pathetism triumphed over prejudice, envy, and ignorance. The young lady had no convalescence, for when the disease was removed *she was well*, and had not to convalesce from the debilitating effects of medicine.

I can assure you, that if ever I felt proud, it was in the cure of this case; for all who knew her, had heard that pathetism had produced some serious disease from which it was not expected she would recover; but now, all are astonished, satisfied, and believe. I would remark, that the cure of both the above complaints was very much hastened by pathetising the sympathetic points, or poles.

2. The next is a lady subject to epilepsy. She has been pathetised for some months, but on account of pregnancy has not been cured, although the fits have been less often and less severe. At about the sixth month, the fits attacked her about every three weeks, being invariably followed by severe labor pains, uterine hemorrhage, and other symptoms of abortion, and which I am positively certain no medicine could have prevented from taking place. By pathetising the uterine sympathetic points, as given in the diagram I forwarded to you some time since, all these symptoms ceased, although in the last two attacks I feared very much that I should not succeed, so severe were these symptoms. I report this case, as showing particularly the power of pathetism in preventing miscarriages in somnipathists; and I would likewise relate, in order to prove the confidence which may be placed in the proper action of the sympathetic points, that in this patient, and others, whenever they have needed physic, the desired result has always been produced by pathetising the point for defecation.

3. A few evenings since I was called to two ladies, who had been pathetised several times,—one of them was a somnipathist. They had been pathetised the evening before I saw them, and the next morning their pathetiser left the town. Through this day, and up to the time I visited them, neither were able to walk; in the one there was a coldness, swelling, pain, and partial paralysis of the left limb, extending from the hip; in the other, the same symptoms in both limbs, but commencing at the knees. After having pathetised them, rapid passes were made on the parts attacked, which, much to their surprise, as well as that of some of their skeptical friends, completely removed their difficulty. Whether this peculiar condition of the limbs of these ladies was owing to the previous process of pathetising, I am not prepared to say, although the somnipathist informed me that it was in consequence of the influence of the last pathetism not having been entirely thrown off.—With the exception of the pain and swelling, the appearances undoubtedly resembled the paralysis produced by pathetising a limb.

4. I was called not long since to pathetise a young lady, as some of her friends desired to witness her clairvoyance, for which she is celebrated. I pathetised her, and an individual present who called himself an operator, wished her to travel with him. As a general rule, I am opposed to this, and more particularly when, as in the present case, the patient had already made a long journey; but, not knowing what arrangements had been made between them before my arrival, I very unwillingly consented. He then conveyed her to England in a packet, and during the voyage she became sea-sick—so much so, that it required all my exertion to prevent her from vomiting. As soon as landed, instead of allowing her time to rest, and to have the disagreeable feelings removed, he hurried her from one place to another with such rapidity, and with such increasing distress to the patient, notwithstanding my pretty broad hints to the contrary, and her own urgent entreaties, that finally I lost my patience and temper, and would allow it no longer. I then pathetised the necessary sympathetic points with much relief to her; and causing her to sleep in this state, slowly and gently conveyed her back, and after a sufficient time, awoke her.—When awake, she stated that she did not feel as well

as usual, her sensations were such as she experienced after a long journey—very much fatigued, and feverish.

The next morning I was again sent for: found her quite unwell, pulse accelerated, considerable fever, and severe pain in various parts of the system. She had passed a very restless night. I again pathetised her, and after having removed all her sufferings, through means of the sympathetic points, she informed me, that, had she not been sustained and strengthened by me on the previous night, "*she would have awakened in convulsions, and the power of clairvoyance would have been completely destroyed.*" She awoke quite well, and quite overpowered me with her thanks and grateful feelings.

It is one thing to place a person in a state of somnipathy, but it is another, and one much more important, to know how to conduct him when in this state; and no person should ever allow himself to pathetise, until he fully understands the rules by which to manage a case properly and successfully. I have seen so much injury to patients, by the hurried questions of the operators, by the impatience manifested at their tardy replies, and by the evident *anger* of the pathetiser, when his patient, who has been teased beyond endurance, refuses to speak at all, that it seems to me, the importance of patience, mildness, forbearance, benevolence, and no feelings of curiosity, cannot be too much or too often impressed upon their minds. Having pathetised more or less for the last thirteen years, and having in late years witnessed much of the management of other pathetisers, I have found, that the greatest enemy against which pathetism has to contend, is the opinion so universally assented to by operators, that "it can do no harm to their patients." This is certainly a great error, for, although pathetism is one of the greatest blessings ever bestowed upon man, yet with all other blessings it is liable to be abused, and then most truly deplorable results must inevitably ensue. Is it not, then, the duty of every operator, to make known every fact of this kind which may come under his notice, that the public may understand all the advantages and disadvantages following a proper or improper management of pathetism, and from this be more careful in their selection of pathetisers?

New Bedford, Mass. Jan. 1843.

For the Magnet.

SHALL THE MAGNET BE CONTINUED?

Mr. Sunderland,—You ask, "shall we continue the Magnet beyond the present volume?" *Of course you shall.* You undertook to establish a magazine, as the organ of certain classes of anthropologists, and you have done so in the midst of hazards and difficulties. You began, when here and there a fact, scattered through the public journals, was recorded only to be laughed at; scorn, and ridicule, and contempt, was the portion of all who gave, what you call pathetism, a hearing. Travelling mountebanks and pilfering impostors were the professors, and credulous fools and silly women the pupils and dupes. You, then, insisted that the subject was respectable, and ventured to attack all that catchpenny collusive display; warned the public against imposture, stripped the cloak off the mysteries, and invited all to see and examine, and practise, with the care of philosophers and the watchfulness of skeptics,—not before gaping crowds, but in private; not as a raree-show, but as a serious and scientific inquiry. And, to aid this inquiry, to *collect facts* and publish them, to provide the means whereby all who were experimenters, in all parts of the country, might have the benefit of the experience of all, and give their united voice to an incredulous community, you have kept up a journal worthy of a place in the boudoir of the lady, on the tables of the drawing room, and in the libraries and studies of men of letters and of science. And even now, you are reaping your reward in the respect with which the subject is already treated. Now, the scholar and the man of the world are both ready to admit, that there is *something* in it, and that it may be the beginning of a new knowledge of man. Those who experiment are multiplied tenfold, and those who believe an hundred fold, since your first number was published; and they, surely, will not so disgrace their new faith, as not to patronise and support the only organ of its doctrines in this country. (Is there another in the world?)

Are not the difficulties of a new journal now surmounted?

Have you not a subscription list, upon which to build up the work?

Have you not an increasing list of valuable contributors, whose communications are increasing in interest and value?

Do not the community look to it as the established organ of the science?

If a magazine was wanted at first, is it not tenfold more important now, when facts come in a less questionable shape?

If the Magnet is discontinued, shall we have its place supplied at all?

Shall we get another journal of such fairness,—a receptacle of facts respectably attested, of all theories reasonably and properly stated,—coloured by no prejudices, and biassed by no favouritism,—established, not to glorify any body, or any made-up theory, but to promote science? If you fail for want of support, will it not be a disgrace to the subject—an argument against it more formidable than the ridicule and prejudice with which it has had to contend? Will not each of your subscribers continue his subscription another year, and induce one of his neighbours to subscribe? A little effort of that sort from many hands will give you great help, and those of your readers who will not do so much as that, whatever may be their notions in other branches of pathetology, may feel pretty sure that they have not that proper sympathy which should characterise the followers of a new doctrine. Put my name down for another year; and I shall send in another name before this volume is finished, and I hope more, provided you publish careful records of your own experiments and observations. I expect much from your ripe experience, and I think nothing should be kept back from us, who have no time to devote to experiments. I make these last remarks, because I see on the *cover* of the last number, that the mesmeric sleep is not always necessary to clairvoyance. The experiments and facts showing that, should have been carefully detailed *in* the Magnet at the time, and not merely alluded to *on* the Magnet long afterwards. When the Magnet is bound that will be lost, and some one, having seen the hint, will follow it out, and found upon it some new *ology*, appropriating to his own glory, as a discoverer, facts which are old stories to you.

Please print this—but print the whole or none.

New York, Jan. 20, 1843. E.

AMPUTATION OF THE LEG DURING A STATE OF SOMNIPATHY.—The first case of a surgical operation, as far as we know, ever performed in this country, was detailed in the fourth number of the Magnet. The following ex-

traordinary relation is from the London correspondent of the Journal of Commerce:

A most extraordinary surgical operation has been performed, the particulars of which will be found detailed in a couple of columns of the Morning Herald of the 26th ult. James Wombell, 42, a laboring man, had suffered for a period of five years with a painful affection of the left knee joint. He was admitted into the hospital at Wellow, in Nottinghamshire, and it was decided that an amputation should take place above the knee joint, and it was accordingly done while the patient was under the influence of mesmeric sleep! On the 1st of October this wonderful operation was thus performed, as given in the words of the mesmeriser, one Mr. W. Topham, a lawyer of the Middle Temple, London; "I again mesmerised him in four minutes. In a quarter of an hour I told Mr. W. Squire Wood (the operator,) that he might commence. I then brought two fingers of each hand gently in contact with Wombell's closed eyelids, and there kept them still further to deepen the sleep. Mr. Ward after one earnest look at the man, slowly plunged his knife into the centre of the outer side of the thigh, directly to the bone, and then made a clear incision round the bone to the opposite point on the outside of the thigh. The stillness at this moment was something awful. The calm respiration of the sleeping man alone was heard, for all others were suspended. In making the second incision the position of the leg was found to be more inconvenient than it had appeared, and the operator could not proceed with his former facility. Soon after the second incision a moaning was heard from the patient, which continued at intervals until the conclusion. It gave me the idea of a troubled dream, for his sleep continued as profound as ever. The placid look of his countenance never once changed for an instant; his whole frame rested, uncontrolled, in perfect stillness and repose; not a muscle or a nerve was seen to twitch. To the end of the operation, including the sawing of the bone, securing the arteries and applying the bandages—occupying the period of upwards of twenty minutes—he lay like a statue. With strong salvolatile and water he gradually and calmly awoke, and when asked to describe what he had felt, thus replied: 'I never new any thing more, (after his being mesmerised), and never felt any pain at all; I once felt as if I *heard* a kind of crunching.' He was asked if that was painful; he replied, 'No pain at all; I never had any, and knew nothing till I was awakened by that strong stuff.' The 'crunching' was the sawing his own thigh bone. The first dressing was performed in mesmeric sleep, with similar success and absence of all pain."

This case is so important, that I have condensed its principal features, and when I consider the gravity with which the operation was surrounded, the numbers who were present, the unquestionable rank and respectability of the professional gentlemen, and the utter absence of all affectation, I must candidly admit that scepticism is staggered, and that we are no longer in a position to deride or despise influences so extraordinary, important and practical.

PATHETISM IN THE 15th CENTURY.

The celebrated Paracelsus was born in the year 1493, and died when only forty-six years of age. He was a great cabalist, physician, and astrologer, and appears to have been intimately acquainted with all the secret and occult properties of nature. He was the first we know of, who ever treated upon *animal magnetism;* and his performances in that time were such as to astonish the world and to draw upon him the united gratulations of the diseased and the infirm. His method notwithstanding it is so clearly laid down by himself, and demonstrated by a variety of pleasing examples in his works, has lain dormant till the present time; and now it begins to convince mankind that the secret and occult properties of nature are not yet half known or understood; nor their advantages received with that thankfulness and regard which ought incessantly to be poured forth to the great Author of our being for the blessings that may easily be derived from them. This was the opinion and nearly the words of Paracelsus himself, who has been recorded by all our biographers as a learned, judicious, and ingenious philosopher. Yet his having been so much addicted to ceremonies, and performed in connexion with them, so many wonderful things, caused it to have been supposed, that he did by the agency of spirits what was really the true and genuine effects of nature only.

In the writings of Paracelsus we find many surprising examples of the power of *sympathy* and of *antipathy* by means of amulets, telesms, &c., compounded of nothing more than natural ingredients: and he particularly describes an infallible method for making a compound and forming it into an image of any bird or beast, by which that bird or beast will be destroyed, or its death effected, though it may be at a distance. So likewise by the hair, fat, blood, or excrements of any animal, the diseases of that animal may be cured, and its life preserved, or destroyed. This is seen in the *armary ungent*, and the *sympathetical powder;* it is astonishing to human comprehension, what surprising effects these are capable of producing on the bodies they are *intended* for.

Thousands of other strange inventions might be here described according to the exact form in which we find them, but for the reasons elsewhere assigned the reader must be content with their intimation only. As many Europeans have the ability of effecting such astonishing things by the medium of telesems, periapts, &c., so also the Tartars have a faculty of producing similar effects. The art of *transplantation* is recorded among magic and the charms. Laws were enacted by the legislatures in England, France, Spain, Italy, and the eastern countries to prevent these practices. But I am confidently informed that it is now done in the more remote parts of Europe. The method is by giving peculiar baits or preparations to any domestic animal, fevers, agues, coughs, consumptions, asthmas, &c., may be removed through a certain process or operation with that animal. Or, the diseases can be transplanted or removed from one person to another. This is sometimes done by burying certain things in the ground; yet though these things are supposed to be done by magic, still the effects are derived from the sympathies and the antipathies in nature; for many persons without knowing any thing of the cause, how, or why it is effected, more than the mere external forms, words, or touch, which is most simple, can remove diseases, take off warts and other excrescences, and perform many surprising cures at a distance from the patient, and even without ever seeing or knowing him. So by a similar property in the sympathy and antipathy of nature, certain leaves, roots, or juices, rubbed upon warts, or carnous substances, or upon the hands, breast, legs, or other diseased parts of the body, and buried in the ground, remove or cure the same. These experiments take effect according to *mediums* or correspondence of disorganizations or putrefactions between the diseased parts of the body and the sub-

stance used, as it is decomposed in the mother earth, from which the human force is principally derived. Nor is it to be wondered at that natural things, be ing fitted to the *mediums*, compounded of correspondent or sympathetic ingredients, should produce such effects, without any supernatural agency.

This is perfectly exemplified in that extraordinary preparation called a *magical lamp* which being lighted, foretells the death of the party of whose blood it was prepared. It is compounded after the following manner: take a good quantity of the venal-blood luke-warm as it comes out of the vein, which being chemically prepared with the spirits of wine and other ingredients, is at last formed into a sort of candle, which being once kindled, or lighted, never goes out till the death of the party, or person, of whose blood it was composed: when he is sick or in danger, it burns dim and flickers, or is troubled: and when he is dead, it is quite extinguished. Of this composition a learned philosopher has written an entire tract, viz.: *De Biolychnio*, or, The Lamp of Life. Hence

> "While the lamp holds out to burn,
> The vilest sinner may return."

LIFE.

For the Magnet.

ANIMAL LIFE.

BY DAVID PORTER, M.D.

Sir,—I have perused, with much interest, the numbers of the Magnet which you have sent me; and although I see much that seems incredible, particularly as regards clairvoyance, yet I am struck with some remarkable coincidences with my own views, which shall appear anon.

I find you consider that "Pathetism differs from all other branches of science. It is governed by laws of its own," &c. However true this may be, in relation to the external influences of what you denominate pathetism, I shall endeavor to show, that as regards the *internal* relations of living bodies, displayed in their ordinary functions, the established laws of galvanism are all sufficient. With fond hopes, nevertheless, that our different routes may converge, I shall trudge on in my own, in expectation of meeting you, ere long, in the temple of science.

To the term *life*, as applied to the functions of organised beings, I have no objection, so far as it is made to express an intelligible fact. But, as a mere expression of impenetrable and inaccessible mystery, I do object to it. Whatever, in living beings, is not understood, is very apt to be referred to life, and there is an end of the matter. Every thing is to be explained in general by it, but nothing in particular. In fact, so strong is the prevailing disposition to mystify this subject, that any thing explained intelligibly is scarcely admitted to throw light on life itself, but is rather contemplated as so much withdrawn from the gross amount of the doings of this mysterious agent. I will not attempt further, at present, to disprove, or even to state, the opinions of authors on the subject; for I frankly confess, they have always appeared to me more unintelligible than the subject itself. Let us, then, examine the human body, as perhaps the most complicated specimen of a living machine.

In viewing man, we discover, at once, that he is divided into two parts, viz. soul, or mind, and body. Although intimately united and mutually operative, they consist of distinct principles, endowed with distinct properties. So far from materialism (with which I have been sometimes charged), I now freely declare, that I have never been able to trace the remotest analogy between mind and matter, except what is necessarily implied in their mutual influences. They are clearly distinct in principle, distinct in properties, and distinct in the laws by which they are regulated, They operate on each other—but *how*, we cannot tell. One thing is clear: even in their reciprocal influences they keep distinct, each exhibiting its appropriate actions and laws. They are, consequently, susceptible of separate investigation, and as subjects of inquiry must be taken separately.

With regard to the soul, or immaterial part, I leave it to the psychologist, after observing, to avoid all misapprehension, that I consider the soul of man, which alone is capable of acting with reference to a future and separate state, is alone made susceptible of it. Inferior animated beings have, connected with their bodies, a corresponding, but mortal principle, which in its constitution and operations has an exclusive reference to their present state, and cannot survive it. This principle, in a decreasing degree of perfection evidently descends to the lower orders of animals; and exhibits the evidences of instinct, which I conceive are palpable, not only in them, but even in the remotest vegetable. That thought is not a *common* property of matter, I need not insist. That the peculiar properties of bodies, so far as successful investigations have gone, arise from the common properties of matter, is a fact which will be scarcely controverted. It must, then, according to a plain philosophical maxim, be received as a principle, until at least one unequivocal exception is produced. And hence we cannot adopt thought as a peculiar property of any material body, until the possibility of its origin from extension, divisibility, and the other common properties of matter, is shown. But I cannot follow this subject further, nor is it necessary for my present purpose. Physical action, whatever may be its remote or exciting cause, is, in principle, physical; that is to say, it arises directly from physical properties, and according to physical laws.

Let us, then, take up the physical part of man, and see whether in operation it exhibits any thing necessarily incompatible with, or additional to, what obtains in unorganized or inanimate matter. At present, I shall only glance at a few functions which have been considered most inexplicable. Of these, generation and growth come first in order. Let me now ask, what regulates the formation of a chrystal? We certainly express but little more than an acknowledged fact, when we say it is composed of particles having definite forms, with polarities of some kind, which incline them to range in orders most favorable to equilibrium. Accordingly, we would naturally expect in bodies of this kind, not only definite forms, but, as regards the polarity of particles, equilibrious rest. Such a body, I admit, could not have any internal operations or functions; but it is easy to conceive, that two such bodies might be brought together with sufficient affinity to cohere; and yet, such polar discrepancies as to produce incessant mutual operations. These operations, in connexion with their new and complicated affinities, may obviously increase, and develope beings of forms and functions corresponding to the primary forms and arrangements of their parts; and this is all that takes place in generation and growth, so far as physical processes are concerned.

I hope the reader will still keep in mind, that an acquaintance with the immediate causes of the particular forms of natural bodies (which would involve an acquaintance with the particular forms of their component particles), is not pretended at present. I profess only to designate those properties of matter

under the direction of which various forms of particles are made to give various, definite forms, to inanimate bodies, or special numbers or arrangements of them, to develope the forms and functions of animated beings.

With the developments of minds we have nothing to do at present, nor even with its operation on the structure we are contemplating; but the immediate effects of that operation, I wish to show, are physical, and perfectly analogous to the effects of mere physical causes. This is true, not only of operations of the mind of man, but of its corresponding principle in the lower order of beings, down to the last traces of instinct in vegetables. They are all equally explicable, without the aid of any imaginary *principle* of life.

In order to proceed intelligibly with the functions, however, my general plan of the whole must first be understood. Viewing the body as a machine, we are struck with the variety of its powers. Every intelligible machine must obviously have some grand moving power, commensurate with its operations. Whether this power be water, steam, weight, or whatever else, it is plain, that in depriving it of the mystical omnipotence of a principle of life, and placing it in an intelligible light, we must bring to view some adequate physical cause. This can no more be found in the tissues, than the movements of the parts of any machine can be found in the wood, iron, or brass of which they are composed. The grand moving power of animal bodies, is what, for want of a better name, I am obliged to call Galvanism.

Let us, then, contemplate the human body as a complicated galvanic machine. We discover, at once, an arrangement of the nervous system so much resembling a battery, that we can approach it under this aspect, with some interest. The brain and ganglia may represent plates, and the nerves communicating wires. The brain and ganglia are each, for some purpose not hitherto understood, composed of two substances,—a cineritious, or cortical, and a medullary substance. Here we have two substances in contact, well calculated for generating galvanic power. Let us now suppose (for this is the result of my investigations,) that the arrangement is calculated to render the eighth pair of nerves, and perhaps others of the respiratory system of Mr. Bell, positive, and all others negative. The nerves are well known to be good conductors, and, consequently, calculated so to act with their opposite extremities on the various fluids and tissues, as to bring their opposite polarities respectively towards the opposite sides of ganglia. Without a plan of the nervous system such as I have been in the habit of using in my demonstrations, it will be impossible to give a correct notion of this interesting arrangement; but for my present purpose, this sketch may answer. Let us now proceed with the particular functions.

Muscular motion is so well known to be an effect of galvanic power, that it need only be named as an effect of the galvanic action of a nerve in contact.

Absorption, which, as a vital function, has been considered an inscrutable mystery, is presented under an aspect which furnishes its own explanation. A positive branch from the par vagum, terminating on the inner surface of the right auricle, in contact with the venous blood, may obviously attract through it oxygen, chlorine, carbonic oxide, acids, water, and all other negative substances with which the venous capillaries may come into contact. While, in like manner, antagonising negative nerves, terminating in what are termed lymphatic glands, may attract to them chyle, lymph, albumen, and other more positive or alkaline substances, whence they may be propelled through the vasa efferentia into the circulation. Here we have a view of lymphatic absorption which stands self-explained. These opposite absorptions are accomplished precisely as are all attractions —by the opposite poles of a galvanic machine. Until I get through, however, I only ask an admission that these *may be* physiological truths. Hereafter, I will attempt to show that they *are* so. Permit me further to say, that in thus presenting life as an appellation of the mere physical operations of living machines, arising from the well-known properties of matter, (which, however they may exceed in *perfection* all human art or ken, yet involve no other *principle* than is displayed intelligibly in machines of human construction,) I am not conscious of any disposition to "beg off," or ask "more time," in order to explain what, in my opinion at least, "life is." And when it is recollected, that, on the ground taken, an acquaintance with the nature of the soul, or instinct, is no more necessary to an understanding of those physical functions denominated life, than is an acquaintance with the nature of man, in order to understand the operations of a machine of his own construction, and under his immediate control, I hope you will understand my theory of life so well, as to bear the proof with patience.

Rosstraver, Pa. Jan. 14, 1843.

For the Magnet.

WHAT IS LIFE?

Sir,—Being favored with a number of the Magnet, I find it filled with useful and interesting matter. But what creates special interest in the work, in my mind, is the desirable proposition of Dr. Porter, to "demonstrate that the anatomy of living bodies presents galvanic structure, which, according to acknowledged laws, not only produces the physical functions, but executes the purposes of the immaterial part, or mind of man, and instinct of inferior organised beings." The subject of animal life, and its operations, is in itself very important, though intricate; and I am glad to know, that you are about to be favored with the views of a medical gentleman, who has had unusual opportunities for investigation, and who for years has ranked high as a scientific physician, and who has been remarkably successful in his profession.

In connexion with the subject proposed to be examined by Dr. Porter, I hope he will particularly come out on the symptoms and treatment of disease.—When he practised medicine in this city, I know he resolved the science of disease, as well as the science of life, into galvanic laws, and applied remedies accordingly. He has used acupuncture more than is generally done by physicians, and found that the needles became magnetic; which occurred in my presence. He told me, that he had seen the needles give out sparks, and ascertained that the sparks consisted of *negative* electricity,—which last facts have not, I believe, been noticed heretofore.

I trust your readers generally, as well as myself, would be gratified with a fuller development of views, which have such a practical bearing on the interests of suffering mankind. Under the conviction that they have this bearing, I think it not out of my province, though a minister of the Gospel, to give them my attention, and to recommend the careful examination of the subject to others.

I am, Sir, your's very respectfully,
S. C. JENNINGS.

Pittsburgh, Pa. Jan. 16, 1843.

ITALY.—The cattle of Italy—cows and oxen—are a noble race. They are long-limbed and finely shaped, and are almost universally of a dull white or a greyish color—very beautiful animals—their horns

very long, sharp and wide spreading. The ox is of great size and strength. They are far superior in shape and beauty to those of our own country.

PSYCHOLOGY.

TRANSPOSITION OF THE SENSES.

We give the following under the head of Psychology, because we are at a loss under what better term to place phenomena of this kind. It is from a French Medical Journal, and is not unlike many other details of this character, described in medical works.

In examining this account, the reader will bear in mind what we have heretofore said of that *sense*, peculiar to certain states of the system, which perceives without the use of the eye, and hears without the use of the ear.—We have a patient, who, when in a state of somnipathy, hears and sees from the pit of the stomach. Indeed, there are multitudes of cases of this kind, and abundantly sufficient to demonstrate the existence of such a *sense*, beyond all reasonable doubt.

The following account was drawn up by Dr. Duvard, of Caen:

Mademoiselle Melanie has enjoyed good health up to the age of twenty-one, when she began to suffer from dry cough, with pain in the chest and headache; in January 1841, she was attacked by pleurisy on the right side, and since then has continued to suffer from pain in that region; the catamenia now decreased in quantity, and was finally arrested.

In the month of July, 1841, I was first called on to visit the patient; she then exhibited all the signs of pleuritic effusion. After a variety of treatment continued for several weeks, a seton was inserted in the patient's side, and she was compelled to have an enema—a remedy which she had previously refused to submit to. A few hours after the administration of the enema, she was seized with a most violent attack of hysteria, which continued for several hours. The attacks of hysteria recurred, with the same violence, for several successive days, and seemed to be excited by the ingestion of food, which she contiuued to eat with avidity, in spite of remonstrances.

Six days after the first attack of hysteria, the patient became suddenly dumb, and continued so for three days, being unable to articulate a single word; on the fourth day she recovered the power of speech, at the termination of a severe hysterical attack; the surprise, however, expressed by those about her at hearing her speak, threw her into a fresh fit, which lasted for three hours, and ended in catalepsy; this was on the 30th of August, 1841. From this period the patient was seized every day with several attacks of catalepsy, alternating with hysteria, and lasting about half an hour.

During the cataleptic accesses there was complete insensibility of every part of the body; the limbs remained in the most fatiguing positions without stirring; the respiratory movements were imperceptible, and the pulsations of the heart, which could scarcely be felt, were from 60 to 70 a minute. After a few days the cataleptic fits became longer, and lasted for several hours, being, however, occasionally interrupted for a minute or two, whenever the girl coughed. Sometimes she would turn round in her bed or sit up; at others, she would suddenly start up, without opening the eyes, and place herself on the edge of the bed, or on some piece of furniture, in a most fatiguing posture; in this state would she remain, until a fit of coughing came on, or until she was brought back to her bed. Although the eyes were constantly shut, she avoided every obstacle carefully, and seemed heedless of risks which would have alarmed any one in a normal state. On one occasion, she left her bed during a fit of coughing, ran to the window and opened it; before any one could come to her assistance, she had one foot out of the window, but the cough suddenly ceased, she became cataleptic, and remained in the same position until some people came and placed her in bed.

When the fits of hysteria and catalepsy ceased, the patient recovered all her faculties, and merely complained of fatigue, and her ordinary pain at the side.

Five weeks after the first attack of catalepsy, Mdlle. Melanie fell several times into a state of natural somnambulism. She would get up without opening her eyes, walk about her room, arrange her furniture, and enter into conversation with those about her, often mentioning circumstances which she would have wished to conceal; after remaining in this state for several hours, she fell into a state of catalepsy, indicated by apparent suspension of the respiration and complete silence.

On the 12th of October, a few days after her first access of somnambulism, I found the patient in a state of catalepsy. Having placed my hand on the epigastric region, I noticed that her countenance became expressive of pain. I then placed my lips on the pit of her stomach, and asked her several questions; to my astonishment she answered correctly, for although I had read most of the histories of this kind, recorded in different works, I did not believe one of them. During this first examination I made numerous experiments, which led me to conclude that there was a transposition of the five senses to the pit of the stomach. On the evening of this day I made fresh experiments, during three hours, in the presence of numerous witnesses, who were not less surprised than myself. In a word, during two months, I renewed the experiments daily, and often several times a day, making use of every precaution to avoid deception, and having numerous witnesses around me. I shall now relate, the results of these experiments.

During the cataleptic state the muscles presented three different conditions:—Sometimes they were all relaxed, and the limbs could be placed in any position, which they retained, however fatiguing the posture might be; at other times all the muscles were in a state of rigid contraction; at others, again, they were relaxed, and the limbs fell down when raised from the body.

There was no sensibility in any part of the body, except over the pit of the stomach, the palms of the hands, and soles of the feet. Thus we might pinch the skin or pierce it with pins, pull out the hair, tickle the nose, &c., without eliciting any sign of feeling. On the contrary, if the pit of the stomach, soles of the feet, or palms of the hands were touched, even with the point of a feather, the girl immediately withdrew the part touched, and her countenance indicated displeasure. When a Leyden jar was placed in communication with the parts just named, she had a violent commotion, or was suddenly awakened, but the jar might be discharged on any other part of the body without producing the slightest effect.

The ears appeared to be insensible to sound, the loudest noise did not attract her attention; but when a small bell was agitated over the sensitive parts, her countenance showed she heard the noise. If the lips were placed in contact with the sensitive parts,

she heard every thing that was said, although the voice was so low that it could not possibly reach her ears. Her answers were delivered in an exceedingly low tone, and, generally speaking, the person appointed to catch them would repeat them, without having heard the questions asked. It was not necessary to place the lips in contact with the sensitive parts; I often employed a long stick, an iron rod, &c., as a conductor from the mouth of the speaker and the patient's foot, and she heard perfectly well, although the persons placed between her head and the speaker could not distinguish a syllable of the question asked.

The patient never spoke, except when her limbs were in a state of relaxation; during the rapid cataleptic state the tongue and organs of speech were immoveable.

The senses of taste and smell were not exercised by their natural organs, but were very acute in the sensitive parts. Thus, we filled the nose with assafœtida, or tobacco; placed bottles of ether, concentrated ammonia, &c., under the nose, without producing the least effect; but when a small portion of a sapid body was placed in contact with the sensitive parts, the patient distinguished it at once. Thus she recognised and named, one after another, the syrups of poppies, vinegar, gum, and capilliare, wine, water, orange flower water, Seidlitz water, currant jelly, &c., although only one or two drops of each substance was placed on the palm of her hand. When a few grains of snuff were placed on the sole of her foot, she sneezed at once, and thus easily distinguished at once French snuff from English snuff.

Although the results of my first experiments induced me to think the sense of vision was transposed as well as other senses, subsequent trials showed that what I had regarded as vision was nothing more than an exquisite sense of touch. When an object was placed on any of the sensitive points, and she was asked if she saw it, she answered 'Yes' and immediately named the object if she was acquainted with it, or if not gave a correct description of the body. Thus she always detected a watch when placed over the pit of the stomach, and never failed to tell whether it was made of gold or silver, was going or stopping. If asked the hour, she would answer pretty correctly as to the *true* time of day; but if the hands of the watch were designedly changed, she always failed to tell the time they mark. She could distinguish and name every kind of French coin placed in her hand, but not the name of the soverign under whose reign they were struck; she could distinguish a bit of silk from a bit of cloth, but not their respective colors.

At the second sitting, she succeeded in spelling the word *commerce*, written in large letters, and placed upon the pit of the stomach; this required considerable efforts, and she complained for a long time of fatigue; in subsequent experiments, however, she was never able to distinguish any of the letters of the alphabet, when placed in contact with sensitive parts. Whenever I asked her to point out the seat of her disease, and indicate to us the appropriate remedies, she refused—answering that such was my business, and not hers.

[The remainder of Dr. Duvard's case is occupied with a history of the treatment, which it is unnecessary to describe. He attempted to pathetise the patient; during the first three sittings she fell asleep, and remained so for several hours, but afterwards all attempts failed to produce any effect. The use of electricity seemed to be attended with more beneficial results than any other remedy; after the first day the fits of catalepsy and hysteria became less frequent and violent, and the patient returned, much improved, to her friends in the country.]

ASTONISHING INSTANCE OF MEMORY.

The Buffalo Commercial Advertiser of Monday notices at length some remarkable experiments with Russel's Planetarium, a magnificent machine, which has been placed in the hands of Prof. Gouraud, (who introduced the daguerreotype,) for exhibition in the Atlantic cities. The power of memory in the illustrator is truly wonderful:

Professor G. presented to our examination a sheet of paper 7 feet long by 18 inches wide, containing an area, therefore, of more than one thousand five hundred square inches, entirely covered with colums of small compact figures, symmetrically divided into various compartments, and offered to repeat to us, *absolutely from memory*, that almost innumerable number of numbers; in no matter what order we might please put our questions We will say nothing of our surprise at hearing such a pledge. On examining the paper, we found it to contain the following topics; Nomenclature of all the elements of the Planetary System, with the columns of 13 ranges of figures, each containining an average of 10 figures or 12,250 in all. 2d. A table of the elements of the Satellites, with six hundred figures. 3d. A table of the decrease of the degrees of longitude in miles, with fractions of miles, from the equator to the poles. 4th. Another table of the increase of the degrees of latitude and the decrease of longitudes, in French metres. 5th. A table of the transits of Venus and Mercury, with the years, months, days, hours, minutes, and seconds, in which they happened and will take place from the year 1631 to the year 2984. A nomenclature of all the Northern and Southern constellations, and those of the Zodiac, with two columns containing the number of stars observed in each of them, by the ancient and modern astronomers. 7th, a table of Latitudes and Longitudes, with degrees and minutes of all the principle cities of the world at large, and of the United States in particular. 8th. The elements of the most celebrated comets which have appeared from the earliest ages to our day. 9th. A table of specific gravities of all the solids and woods hither calculated by the most distinguished savans, with four decimals to each. 10th, A table containing dates of improvements, discoveries, remarkable epochs in the history of astronomy. 11th. A table of 200 hyperbolic logariths with ten decimals to each, which the professor calls his herculean table of experiments, and which is so, indeed, in the full sense of the term. 12th, The chemical analysis of ærolites known. And, to crown this overwhelming table of figures, many other interesting tables connected with literature, history, and other subjects of attraction.—13th. A table of logarithms of numbers, with seven decimals, from 1 to 1000—and the ratio of the diameter to the circumference of the circle with 154 decimals —the aggregate number of figures, in all the tables, amounting to no less than twenty thousand three hundred and thirty nine!

These tables were divided among the company, who immediately proceeded to satisfy their eager curiosity, or to dispel their doubts, by putting questions to the Professor according to his request.—Here we must say in brief, that to our utmost astonishment, Professor G. fulfilled his pledge to the satisfaction of the company. Every fact was answered and put down upon a black board absolutely from memory; and at the end of the *soiree*, this black board 16 feet long by 6 feet wide, had several times been successfully covered over with thousands of figures, each of them representing an interesting fact in the lectures they are intended to illustrate.

We regret that our limits do not allow us to enter into some more details of the truly interesting exper-

iments of Prof. G. The Professor says that he has acquired this wonderful strength of memory by the application or use of an entirely new discovery of his own, and of which he proposes soon to give the benefit to his future fellow citizens, in return as he says for the kind reception he has met with in this country. We will welcome it by anticipation, for it certainly must be of immense value. In the meantime, our contemporaries of the East will soon have an opportunity to judge for themselves of these herculean feats of memory. We will merely state that if Russell's Planetarium is the finest piece of American mechanism we ever beheld, Prof. GOURAUD is undoubtedly the most astonishing specimen of strength of memory we have ever seen.

TRANCE.

This term has long been used to signify a state, in which the soul seems to have passed out of the body into the celestial regions; and we have seen persons who were subject to ecstacies which were thought peculiar, only, to those who had actually left the body, and passed into heaven.

We have often produced this state by pathetism. The persons in whom it is brought about, describe it as one of the most delightful states imaginable. But, frequently they manifest an unwillingness to describe it at all, as they say it so far exceeds all our ordinary conceptions of what is elevated, refined, beautiful, and heavenly.

We shall, hereafter, take occasion to give some further account of some of these cases of our own, and, in the meantime, we present the following from the life of the celebrated Rev. William Tennent. There are persons now living who remember this man, and some who believe that he actually died and went to heaven, in the trance narrated below.

After a regular course of study in theology, Mr. Tennent, then with his brother Gilbert, at New Brunswick, N. J., was preparing for his examination by the Presbytery as a candidate for the gospel ministry. His intense application affected his health so much, that his life was threatened. In this situation his spirits failed him, and he began to entertain doubts of his final happiness. He was conversing one morning with his brother, in Latin, on the state of his soul, when he fainted and died away.—After the usual time, he was laid out on a board, according to the common practice of the country, and the neighborhood were invited to his funeral on the next day. In the evening his physician, who was warmly attached to him, returned from a ride in the country, and was afflicted beyond measure at the news of his death. He could not be persuaded that it was certain; and, on being told that one of the persons who had assisted in laying out the body thought he had observed a little tremor of the flesh under the arm, although the body was cold and stiff, he endeavored to ascertain the fact.—He first put his own hand into the warm water, to make it as sensible as possible, and then felt under the arm, and at the heart, and affirmed that he felt an unusual warmth, though no one else could. He had the body restored to a warm bed, and insisted that the people who had been invited to the funeral should not attend. To this the brother objected, as absurd, the eyes being sunk, the lips discolored, and the whole body cold and stiff. However, the doctor finally prevailed, and all probable means were used to discover symptoms of returning life. But the third day arrived, and no hopes were entertained of success by the doctor, who never left him, night nor day.—The people were again invited, and assembled to attend the funeral. The doctor still objected and at last confined his request for delay to one hour, then half an hour, and finally to a quarter of an hour; when his brother came in, and insisted, with earnestness, that the funeral should proceed. At this critical and important moment, the body, to the great alarm and astonishment of all present, opened its eyes, gave a dreadful groan, and sunk again into apparent death. This put an end to all thoughts of burying him, and every effort was again employed, in hopes of bringing about a speedy resuscitation.—In about an hour the eyes again opened, a heavy groan proceeded from the body, and again all appearance of animation vanished. In another hour, life seemed to return with more power, and a complete revival took place, to the great joy of the family and friends, and to the no small astonishment and conviction of the very many who had been ridiculing the idea of restoring life to a dead body.

The writer of these memoirs states that on a favorable occasion he earnestly pressed Mr. Tennent for a minute account of what his views and apprehensions were, while he lay in this extraordinary state of suspended animation. He discovered great reluctance to enter into any explanation of his perceptions and feelings at that time; but being importunately urged to do it, he at length consented, and proceeded with a solemnity not to be described.

"While I was conversing with my brother," said he, "on the state of my soul, and the fears I had entertained for my future welfare, I found myself in an instant in another state of existence, under the direction of a superior Being, who ordered me to follow him. I was accordingly wafted along I know not how, till I beheld at a distance an ineffable glory, the impressions of which on my mind it is impossible to communicate to mortal man. I immediately reflected on my happy change, and thought—Well, blessed be God! I am safe at last, notwithstanding all my fears. I saw an innumerable host of happy beings surrounding the inexpressible glory, in acts of adoration and joyous worship; but I did not see any bodily shape or representation in the glorious appearance. I heard things unutterable. I heard their songs and hallelujahs of thanksgiving and praise, with unspeakable rapture. I felt joy unutterable and full of glory. I then applied to my conductor, and requested leave to join the happy throng; on which he tapped me on the shoulder, and said, 'You must return to earth.' This seemed like a sword through my heart. In an instant I reccollect to have seen my brother standing before me, disputing with the doctor. The three days during which I had appeared lifeless, seemed to be not more than ten or twenty minutes. The idea of returning to this world of sorrow and trouble gave me such a shock, that I fainted repeatedly." He added: "Such was the effect on my mind of what I had seen and heard, that if it be possible for a human being, to live entirely above the world and the things of it, for sometime afterwards I was that person. The ravishing sound of the songs and hallelujahs that I heard, and the very words that were uttered were not out of my ears for at least three years. All the kingdoms of the earth were, in my sight, as nothing and vanity; and so great were my ideas of heavenly glory, that nothing which did not in some measure, relate to it, could command my serious attention."

This extraordinary event is abundantly confirmed by the worthy successor of Mr. Tennent in the pastoral charge of his church. He states, that after hearing from Mr. Tennent's own mouth a particular

narration of this surprising trance, he said to him, "Sir, you seem to be one indeed raised from the dead, and may tell us what it is to die, and what you were sensible of while in that state." He replied in the following words: "As to dying—I found my fever increase, and I became weaker and weaker, until all at once, I found myself in heaven, as I thought. I saw no shape as to the Deity, but glory all unutterable." Here he paused, as though unable to find words to express his views, and lifting up his hands, proceeded: "I can say as St. Paul did, I heard and saw things unutterable. I saw a great multitude before this glory, apparently in the height of bliss, singing most melodiously. I was transported with my own situation, viewing all my troubles ended, and my rest and glory begun, and was about to join the happy multitude, when one came to me, looked me full in the face, laid his hands upon my shoulder, and said, 'You must go back.' These words ran through me; nothing could have shocked me more; I cried out, 'Lord, must I go back?' With this shock, I opened my eyes in this world. When I saw I was in this world I fainted, then came to, and fainted for several times, as one would naturally have done in so weak a situation.'

"Mr. Tennent further informed me, that he had so entirely lost the recollection of his past life, and the benefit of his former studies, that he could neither understand what was spoken to him, nor write, nor read his own name; he had to begin all anew, and did not recollect that he had ever read before, until he had again learned his letters and was able to pronounce the monosyllables, such as *thee* and *thou*. But that as his strength returned, which was very slowly, his memory returned also. Yet, notwithstanding the extreme feebleness of his situation, his recollection of what he saw and heard while in heaven, as he supposed, and the sense of divine things which he there obtained, continued all the time in their full strength, so that he was continually in something like an ecstacy of mind. And," said he, "for three years, the sense of divine things were so great, and every thing else appeared so completely vain, when compared to heaven, that could I have had the world for stooping down for it, I believe I should not have thought of doing it."

The pious and candid reader is left to his own reflections on this very extraordinary occurrence. The facts have been stated, and they are unquestionable. The writer will only ask, whether it be contrary to the revealed truth, or to reason, to believe that in every age of the world instances like that which is here recorded have occurred, to furnish living testimony of the reality of the invisible world, and of the infinite importance of eternal concerns.

MUSICAL POWERS IN A CHILD.

Extracted from the British Phrenological Association held at Glasgow.

The Hall was crowded with ladies and gentlemen.

Mr. Atkinson read a communication from Mr. R. Cull, of London, detailing a case of precocious musical talent, in the history of the *Infant Sappho*, Louisa Vinning. She was born at Kingsbridge, Devonshire, in 1836, being now three years and ten months old. Her father John Vinning, is a good musician; he sings, and plays well on the piano-forte and violin, and, having also exhibited his musical talent at a very early period, he was educated for a musician, at the expense of Mr. Garrow. Mr. Vinning has two brothers of considerable musical talent, who have left their business to make music their occupation. One is a violinist, and the other an organist. Mr. Vinning's father possesses a natural talent for music, which he manifested by playing the flute, in band of a volunteer regiment, for several years. He knows nothing of the technical language of music—he played entirely by ear, and he kept tune and time well.

Louisa Vinning, surnamed by Mr. Parry, the Infant Sappho, enjoyed music at a very early age. "She was only nine months old," her father states, "when I first observed the intense delight she derived from music; when crying, the sounds of a musical instrument immediately soothed her, her whole frame moving in unison with the measure, and her face beaming with enjoyment. I played to her occasionally on the violin. I took the opinion of several medical men on the propriety of indulging her in this kind of amusement, lest she should be injured by too early excitement. Their advice was, to give her gentle exercise in singing, and to guard against late hours. She sang before she could speak. Her passion for music increased, until she seemed to require an atmosphere of music to exist.

In the early part of 1839, she was discovered to have walked in her sleep, and so as to prevent accidents, she was afterwards put to sleep on a sofa in the sitting room until the family retired to rest; she frequently sang in her sleep, and one evening when only two years and eight months old, she sang, sweetly, and distinctly, a melody perfectly new to her father, and repeated it several times, so that he wrote it down, gave it to Mr. Blockley, who arranged it, wrote the poetry, symphonies, and accompaniments, and called it the *Infant's Dream*. M. Thalberg, the celebrated musician, in a letter dated December 11th, 1839, speaks of her astonishingly correct singing, and her pleasing voice. Sir George Smart, in a letter dated 3d April, says, "I beg leave to state that I consider her a most wonderful child, possessing strong feeling for music, with an extraordinary correct ear both for time and tune; her singing is perfectly natural, without effort, and her infantile manners and childish apppearance prove her extreme youth." M. Moschelles says, in a letter dated 29th of March, 1840, "She appears to me, not only to be most liberally gifted with a voice of unusual compass, but also with a sensitiveness of organization whether as concerns the power of correctly retaining melodies, or of re-producing intervals very remarkable, being only three years and a half old."

She sung before the queen and court at Buckingham Palace, on the 3d of August, 1840, and received substantial proofs of the queen's delight at her talent. She is now singing three nights a week at the Lecture Theatre of the Polytechnic Institution. She sings the musical *sounds* of the melodies without words; and repeats any Italian air, after hearing it three or four times. Her style of singing is very remarkable for similarity to our first opera singers. It is appropriately supported by the adoption of the natural language, gesture, &c., to express the sentiment of the air she sings. In her graceful, though infantine action, she is often very expressive; but like most public singers, there is commonly a redundancy of action, and that too, of an exaggerated nature. Her public singing at the Polytechnic Institution commonly comprises the following.—

1. An Italian air.
1. The infant's dream.
3. The proof of her power to sing passages struck on the piano on the instant, which frequently terminates in some Italian air.
4. Her power of changing the style and key of music, without the usual preparation, in which she

passes at once, from some Italian to an English, thence to a Scottish, and finally to an Irish air.

5. An Italian air.

6. Finale, part of a harmony in the National Anthem of God save the Queen.

All her talent is natural, for hitherto she has received no technical instruction in music. Her voice is two octaves in compass; the lower notes are very sweet in quality, and she possesses great power of voice. She can introduce occasional sharps and flats with great precision and elegance. When false notes were purposely played to try her, she invriably ceased and evinced some anger.

THE MAGNET.

NEW YORK, MARCH, 1843.

CEPHOLOGY.

We have already informed our readers, as to the reasons for applying this term to those operations on the human brain, by which we are enabled to control the cerebral organs. A term is needed for the purpose of designating this process, and distinguishing it from others connected with the general subject of pathetology; and this is as suitable as any other, if we choose to use it for this purpose.*

As we have been requested, frequently, to give the history of this discovery, and as various attempts have been *clandestinely* made, to invalidate our account of the origin of this process of pathetising, we may as well take this opportunity of doing, what may seem to be justice to this subject.

In the New-York (or, as it was then called, Zion's) Watchman, for October 23, 1841, of which we were then editor, we published *the first account that ever appeared*, as far as we know, *of this process of operating upon the separate cerebral organs.* That account did not appear till more than two months after we made this discovery, which occurred as it is there stated. We had, for years, been engaged in collecting facts on various "MENTAL PHENOMENA;" and, under this head, we had been publishing a series of articles, showing the "influence of the mind over the nervous system." And, while preparing those articles for the press, we commenced a course of experiments in Pathetism, for the purpose of bringing out, in those articles, an account of the phenomena connected with the state of somnipathy; and hence, that account was not published until it best fell in with the other subjects under examination. The first operation of the kind was made on the 5th of August, 1841, and our published account of its *origin* was made in the paper as above stated, and is as follows:

"If it has occurred to the reader, that there *might* have been some collusion in the matters detailed in our last, in regard to what was done by the sleep-waker (somnipathist), we ask him to weigh, candidly, the following details, in some of which, it will be seen, deception was scarcely, if at all, *possible.*

"As far as we know, the following *phrenological* tests were the first of the kind ever tried, in this or any other country; and as they did not originate with either of the parties concerned, the reader will not suppose that it should require a very large development of marvellousness in us, to believe that there was something extraordinary in these results. How far they may tend to demonstrate the truth of mesmerism [pathetism] or phrenology, in the mind of the reader, will depend altogether on his belief that there was, really, no deception in either of the persons concerned.

"I had noticed, as before stated, that the limbs of the patient could never be made to obey the will of the operator, when the brain was not mesmerised [pathetised]; and having tested this fact a sufficient number of times to satisfy myself that I was not deceived in this matter, *it occurred to me, that particular portions of the brain might be operated on in the same way.* I therefore, at the sitting last mentioned [*Aug.* 5, 1841], requested Mr. Peale, the operator, while the patient was asleep, and playing at the piano, to reverse the passes over those portions of the brain appropriated by phrenologists to the organs of *tune.* He did so, *after* I had designated the places to which I referred. The passes were reversed a few times, simply with his thumbs. She was now ordered to play; but she replied, that *'she could not think of the tune'!* She was repeatedly urged to play, but uniformly made the same reply. Satisfied, as I was, that there could not have been *any* collusion in *this* experiment, the reader may easily imagine how deeply I was interested by it,—demonstrating, as it did, the truth of phrenology in my own mind, beyond the shadow of a doubt. The same thing I have since done, and seen repeated, on different patients, and in various ways, and the results have always been the same."

Our discovery of what we called the "sympathetic points" in the face and neck, was made on the 5th of Jan. 1842, and stated in the Watchman of Jan. 29, 1842. On the 8th of the same month, we discovered what we called the "conductors" of the human system, and published our account of them in the Watchman for Feb. 12, 1842. The account is thus stated:

"That every physical and mental organ has its appropriate magnetic [*sympathic*] conductor, corresponding, in some respects, to the nerves, but differing from them, altogether, in their functions. A number of authors have admitted, that a mysterious imponderable fluid might exist, and pervade the human system, under certain circumstances; and the believers in mesmerism (ourself among the number) had supposed, that the influence called magnetism, was conducted by the nerves of sensation or motion. But we are not aware that any one has ever attempted to prove the existence of a separate class of conductors in the human system, or that any investigations were ever undertaken for the discovery of such conductors, till those of our own, which have resulted in the assumptions above stated."

And we arrived at our conclusions about the same time, in relation to the laws which balance the organs into "*positive and negative,*" thus making one directly *opposed* to the function of another; but no *distinct* account was published of this fact, till the Watchman of March 26, 1842.

But the above, we believe, was the *first* account which was ever *published* of this *method* of controlling the separate cerebral organs by *manipulation.* And though our account of the same discovery has been published, to our knowledge, in more than two hundred different newspapers in this country, including some also in France and England, and though the above account had remained before the world for more than one year, while our process of operating has been practised more or less by every pathetist throughout the country, we say, notwithstanding these well known facts, an anonymous writer in two of our city papers, has recently made an attempt to inva-

* We write it Cephology, instead of Cephalology, merely for the sake of EUPHONY.

lidate the above account.*

Of course, we could not be expected to notice all the anonymous assaults of this kind, which might be made upon our integrity; and yet, as they may, and probably will, to some extent, produce a false impression where the facts are not known, we are induced to submit the following, for the simple purpose of *proving the truth of the account above quoted from the New-York Watchman.*

The following is from Mr. G. N. Peale, the son of the operator (now absent from the city,) referred to in the extract above:

"I well remember when the magnetic phrenological experiments were first performed in this museum, in July or August, 1841, by my father, in connexion with Mr. Sunderland. I was present daily, and know that my father often stated to the spectators, that these operations on the separate organs of the brain were first suggested and performed by the request of Mr. Sunderland, as I had never heard of them before from any one.

GEO. R. PEALE.'

New-York Museum, Dec. 17, 1841.

The gentleman whose name is attached to the following, is well known as one of the best practical phrenologists, probably, in the country:

"I was present at a meeting of scientific gentlemen, held at the New-York Museum about the first of September, 1841, for the purpose of witnessing some phrenological experiments on the separate organs, by the application of the fingers to the head of the subject. And I am convinced, from what I heard Mr. Peale say at that time, and also from the statements of others then present, that Mr. Sunderland was the first who suggested to Mr. Peale the practicability of exciting, in this way, the different faculties of the mind. L. N. FOWLER."

New York, Dec. 14, 1842.

The meeting of scientific gentlemen above named, and also in the succeeding testimony from Dr. Lee, formerly Professor of Materia Medica and Medical Jurisprudence in the University of the city of New York, as our readers will remember, is referred to in the first number of the Magnet, page 13:

"The subscriber hereby certifies, that he was present by invitation at the New-York Museum, in the month of September, 1841, to witness what were called magnetical and phrenological experiments on the separate organs of the brain; and there and at that time, he understood Mr. Peale to say, that the mode of performing those experiments was first suggested to him by Mr. La Roy Sunderland, and did not originate with himself.

CHAS. A. LEE, M.D."

New-York, Dec. 12, 1842.

The following is from two intelligent gentlemen, who were in frequent attendance to witness our experiments, and, put with the foregoing, they are sufficient to prove that we published *a true account* of the *origin* of this method of operating on the human brain:

"We were frequently present, at the New-York Museum, during the summer and fall of 1841, to witness certain magnetic experiments performed by suppressing and exciting the separate organs of the brain, by Mr. Peale; and we well remember having heard him state, at different times, that these experiments were first performed by him at the suggestion of Mr. Sunderland.

JOHN PENDLETON,
ELISHA ELY, JUN."

New-York, Dec. 18, 1842.

Observe, we have introduced the above testimonies, simply to confirm the truthfulness of the account which we published a year and a half ago. And now, once for all, to prevent all misapprehension, or necessity for noticing any similar assaults which may be made upon our veracity, we beg all who may desire to know the true state of this case, to notice:—

1. That, though we have never *professed* to attach any very great importance to the discovery above referred to, yet we do care something for our own *integrity;* and think it of some importance to repel any insidious attempts at its impeachment, however *clandestinely* made.

2. The *true account* of a discovery, as to any *method* of operating on the human brain, or any thing else, must be determined by the *published accounts made of it, at the time the discovery was made.* For, when the *method* of doing any thing is once before the world, no man, who may assume to have made a *similar* discovery, could prove that he did not derive his knowledge from that *published* account. And hence, we must see, that ten thousand reports which might be originated about any discovery, a year or more *after* the account of its origin was published to the world, could not amount to anything.

And we now state again, that if any account of this METHOD of controlling the cerebral organs, was ever *published* previous to ours, above stated, we have neither seen it, nor ever heard of it. We know, that some account may be found in Muller's Physiology, of *exciting* the cerebral organs by galvanism, many years ago. The account may be found also in Walker's Pathology, page 131, recently published in this country. Muller makes the following statement:

"The stimulus of galvanism *excites, in all the organs of sense, different sensations in each organ,* namely, the sensation proper to it. In the eye, a feeble galvanic current excites the special sensation of the optic nerve, namely, that of *light.* In the auditory nerve, electricity produces the sensation of sound. When a piece of zinc is applied to the point of the tongue, and silver to its back part, an acid taste is produced. It has not, at present, been much observed, whether peculiar smells are produced by the application of galvanism to the organs of smell; Ritter, however, has perceived them; and it is a known fact, that the electricity excited by friction, gives rise to the smell of phosphorous."

This is, probably, the first account of any cerebral excitement of the separate cerebral organs, ever published.

And it will be remembered, that in our second number we reviewed a work by Dr. James Buchanan, in which he describes some cerebral excitements, which he first performed in the spring of 1841, by what he calls a "galvanoid fluid." In that work, published by himself during the summer of 1842, professedly to give an account of his discoveries, he says:

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* Though *anonymous*, he is well known to us; and we hope we may not be hereafter compelled to give a few facts, we have at command, intimately connected with his personal history. Soon after we made the above discovery, he *interfered* with one of our subjects, and intercepted the course of our experiments—as we believe, from selfish motives; and not long after, he attempted to appropriate certain of our own discoveries to himself. But failing in this, he has not been wanting in efforts to exalt himself at another's expense.

The articles above referred to were a tissue of falsehood, as a friend of ours offered to prove; and a reply was accordingly presented to both of those papers, but we are sorry to say, both refused us a hearing.

"I determined to excite the different portions of the brain *by a galvanic or galvanoid fluid*, and calling them separately into action, to watch the resultant phenomena; or, by exciting them in myself, to enjoy at once a perfect consciousness of the nature of each faculty, and its organ. *In this attempt*, I have met with even a more glorious success than I had ever anticipated."

And then, he adds in a note, page 10—

"*I say* NOTHING *of my mode of operation* at present, as that will be displayed, hereafter, publicly."

Here we see, that Dr. B. himself, in presenting all the newspaper reports of his numerous experiments, tells us, that *he had not*, and WOULD NOT, for the present, *reveal* his *method of operating*, or applying what he calls the "galvanoid fluid." And those who have read his book, know that he does not disclose his *method* of operating; nor, indeed, has he published any account of it, that we know of, to this day. And we frankly confess, that we never could form a satisfactory idea as to what his peculiar method was, till we heard his lectures in this city recently.* The truth is, we were deceived by his professing to have discovered "a *new* agency," which he claimed to have "added to our therapeutic list," (page 21); and his disclaiming, so explicitly, all dependence upon what had been called mesmerism, or living magnetism, as will be seen by referring to the second number of the Magnet, page 47.†

3. As far as we know, Dr. Buchanan may have been the first who ever excited the separate cerebral organs by manipulation, in the waking state. We have always stated (see first number of the Magnet), that we never experimented upon a subject in the waking state, till we had heard of its being done by others; but what Dr. B.'s *method* of operating was, we did not know, nor do we know of one who could, at first, even *conjecture* what it was. At one time, we were told it was "a galvanoid fluid"—at another, it was by applying alcohol. But all we have to say, now, upon the subject is, that *his own work contains no account of his* METHOD *of operating*, nor does it make any disclosures from which it could be *inferred*, from any thing he *published* before Aug. 5, 1841, the time when we first operated on the separate organs by manipulation.

4. It is not unreasonable to suppose, that the same process of operating may have suggested itself, about the same time, to different persons, in different places. We sent the papers containing the accounts of our own experiments, to Dr. Elliotson, of London, and he afterwards described them, with others, in a public address to the London Phrenological Society, where he is represented, by the reporter, to have said:

"That whilst these things were proceeding in America, experiments of precisely the same character and effect were carried on in different parts of England, by gentlemen who knew nothing of the operations of each other, or of those going on in America. He had sent down copies of the American papers to Hampshire to Dr. Engledue, with a request that he would hand them to Mr. Gardiner, a gentleman of the highest respectability and learning, the son of Sir James Gardiner, an old member of this society. It happened, *curiously enough*, that when Dr. Engledue went over to Southampton, to give the packet of papers (which he himself had not opened) to Mr. Gardiner, he found that gentleman, Mr. Mansfield, and others, actually engaged in a series of experiments, which, on afterwards looking into the packet, they found to exactly correspond with those performed in America."

Now, without stopping to query as to *how* those papers, containing an account of our experiments, (as we suppose they did, for Dr. Elliotson acknowledged the receipt of the papers we sent him, in a private letter to us,) we say, without stopping to query as to how he came to send those papers to Mr. Gardiner, *before they had been opened*, we might attempt to show, that Mr. Gardiner must have got his idea of those experiments from our account. But we shall do no such thing—we do not believe it; and we should despise ourself, if such a suspicion were allowed to suggest itself to our mind. The origin of the experiments in England, is fully described by Dr. Engledue, in the report of his address before the London Phrenological Society, published in the Edinburgh Phrenological Journal for October, 1842. It is there stated, that they were first performed by a Mr. Mansfield, December 18, 1841.

5. In conclusion, we beg it may be understood, that we have no rival "claims" to settle with any one. The same thing we did, may or may not have been done years before, or about the same time, by one or a score of others. All we affirm is, that what we described in our account of the *origin* of *this method* of controlling the cerebral organs, originated *as we have stated*, and that whatever accounts of cerebral excitements may have been published previous to our account, we have never, to this day, seen or heard of any, detailing or suggesting that *method* of operating. And it is a fact worthy of notice, that our method did not, at first, produce what is called *excitement*, only by exciting the organs back again after their action had been *suppressed;* and we do not know that any one has ever pretended to such a discovery of any method by which *such* control could be exercised over the separate cerebral functions, without injury to the patient, except ourself.

We shall, in succeeding numbers, give some account of what we call Cephology, and notice the difficulties which have seemed to lie in the way of its being turned to any practical benefit.

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* Nor will the reader attribute this to our dullness of apprehension, we think, if he has ever read the Doctor's book. And the editors of the Edinburgh Phrenological Journal, it seems, were equally dull, for in that work for October, 1842, they speak of having received an account of Dr. B.'s discoveries, from himself, (the same, probably, published in his book, page 80,) but which, they say, did not *make it appear* what his method of operating was, otherwise than his disclaiming mesmerism.

† And yet, the writer before referred to, (who attempts to invalidate our account,) to assist the Dr. from the difficulty in which his disclaimers had, unhappily, involved him, quotes the words of Dr. Charles Caldwell, page 78, (where Dr. Caldwell says Dr. B.'s experiments *were* "produced by a principle IDENTICAL with mesmerism,") and puts them into the mouth of Dr. Buchanan, thus making the Dr. CONTRADICT HIMSELF!

WHAT IS IT?

The more we see of what we denominate Pathetism, the more we are inclined to the opinion, that most of the laws which govern this agency are yet to become known.

One theorist prides himself in having formed his *system* before he commenced his experiments, which have given

rise to the use he makes of the term "Neurology." We willingly yield to him all the credit he may be able to realise from the very frank avowal he has made of this fact. *Theories* first, and *facts* afterwards! And this is the way we are to arrive at the truth!

From the account, in our December number, of the above theory, it will be seen that its author assumes, that what he calls the neuraura is conveyed by the *nerves*, and from one person to another, the nerves are the channels through which it passes. As, for example, he locates an organ of *rotation*, (which, when excited, causes the subject to whirl round like a top,) in the end of the nose; and placing the finger on the proboscis of any susceptible person, this *neuraura* is conveyed from the hand of the operator, by the nerves, to the organ in the brain. Now we beg to know, what nerves have ever been traced from the tip of the nose to any particular portion of the brain? —That there are points in the face and neck, and, in fact, throughout the entire system, which *sympathise* with particular portions of the brain, is what we discovered long ago; and this fact shows how it is, that when any organ is controlled in any way, it speaks out through the eyes or muscles of the face. But there is nothing to demonstrate the existence of any connexion between the influence conveyed by manipulation through the *nerves*, either of motion or sensation. We do not mean to be understood as conveying the idea, that they are not affected by this influence, whatever it may be; but we know, and have demonstrated by numerous experiments, that this agency is not confined to the nerves, nor exclusively conveyed by them. For, admitting that it is, how shall we account for the well-known fact, that the functions of the nerves of *sensation* and *motion*, are annihilated by pathetising any portion of the system? Most persons in a state of somnipathy, have no *sensations* by the ordinary organs of sense; but what become of the nerves of sensation, when one is in a sound state of somnipathy?

Nor is this all. It is well known, that when the operator applies his hand to any part of the system of a person in this state, neither the nerves of motion nor sensation will be affected, without he *designs* to produce some such result; and often, when they are touched by a third person, the patient is not sensible of it at all! Where are the nerves all this while? And often, you may apply *ammonia* to the nose of a somnipathist, without producing the slightest effect; but on applying it to the olfactories of the operator, you may throw the *patient* into spasms. For these results, the *neuraura* theory affords no satisfactory solution at all.

Again. Every person much familiar with pathetism, knows that the effects often produced on the cerebral organs do not depend, merely, either upon the susceptibility of the subject, or on any influence conveyed from the hand of the operator. Results of this kind vary, and these "variations" may be carried almost to any extent. But for these differences in the cerebral excitements of different persons, whether asleep or *awake*, the *neuraura* theory assigns no satisfactory cause,—as it does not, for numberless other phenomena, which so completely annihilate many other beautiful castles which have been so ingeniously constructed, in the absence of facts.

It will be seen, that one of our correspondents in the present number, thinks he has assigned the true reason for the different results which often come out from different cases. He thinks the difference is to be attributed to the different degrees in which the various subjects may have been *pathetised*. And we might think so too, probably, had we not performed a vast variety of experiments which go far, very far, as we believe, towards demonstrating the contrary. Instance the following. Here is a person, whose cerebral organs we can control, while he is awake, but he cannot be put to sleep. Another may be put to sleep, and his cerebral organs cannot be excited at all. Another is susceptible of the excitement of any portion of the brain, *provided* he understands beforehand what the impression is you wish to produce.—True, we can assign what we believe would be received as the only correct solution of these difficulties; but we could not do it on the ground maintained by our esteemed correspondent.

Our readers will, no doubt, give Dr. Porter a candid hearing. If his theory can be made out, let it be done. We must all admit, that there can be no animal life, where there is no caloric, no electricity, or magnetism, or moisture. There is no life in a substance perfectly *cold* or *dry*; but we do not infer, from this, that *life* is, really, either of these imponderable fluids in their natural state, or in that state in which they appear where there is no life.

In speaking of the sense, peculiar to living bodies, which sees, hears, and *perceives* without the ordinary senses, we have called it magnetic, or magnetism in an organised form; and we have done so, for the want of a better term, to give an idea of some of the laws by which it would seem to be governed. But we have always known, that the laws which govern in the one case, do not apply in the other; and hence we prefer the term *pathetism*, when speaking of the *susceptibilities* of the system, and the *agency* by which we operate on it by manipulation.

The *attraction* produced by pathetising, though real, is not *reciprocal*. The hand of the operator may, and often does, attract the subject, but the hand of the subject does not attract that of the operator; and though we could perhaps assign a plausible reason for this, yet it does not appear to be perfectly satisfactory, and if it did, there are many other objections in the way. Admitting that the human system is a real *galvanic* battery, we do not see why a dead body might not (in many cases, at least,) be restored to life again. Death produces no change of structure; that is, *dying* does not, that we know of, produce any alteration in the nervous system: the muscles, nerves, tissues, and every part, remain as before. And when death takes place without any change of structure, why should we not be able to restore life by the galvanic battery? Will Dr. Porter oblige us with an answer?

THE REASONS, WHY?—It will be seen, by an article in our present number, over the signature of "E." that we have been (quite mildly, to be sure,) reprimanded for our tardiness in giving publicity to some of our discoveries, if we may so term them, connected with pathetology. And other complaints have reached us, that we have

manifested so much unwillingness to give publicity to the numerous facts, which have been accumulating on our hands, in connexion with this subject, especially for the last two years. We frankly acknowledge the truth of this charge, and beg leave to justify, on the following considerations:—

1. The difficulties of making proper selections, suitable for publication. We could not think of publishing an account of any considerable proportion of the facts which come under our own observation. And it requires more time and care to prepare reports for the public eye of these phenomena, than our patronage has, as yet, enabled us to devote to this work.

2. We labour under the apprehension, that almost every other person at all familiar with this subject, has become acquainted with the same phenomena; and why should our pages be filled with details of facts so well known?

3. We have been anxious that this work should not be injured by an apparent *carelessness* in our *manner* of stating facts; and we wish, also, to give others an equal opportunity of stating, for themselves, the results of their own experiments.

It is true, the relations we have sustained to the subjects included in the purview of this work, have greatly multiplied our facilities for the collection of *facts;* and in due time, if we may be sufficiently sustained, the results of our numerous experiments and observations shall be revealed for the public good.

Dr. Buchanan in Albany.—Various accounts have appeared recently in the different papers, giving the details of a hoax played off upon Dr. Buchanan, by one of his subjects, while lecturing in Albany. The particulars are thus stated by a correspondent of the Albany Evening Journal:—

"I was solicited to be one of fifty gentlemen, to form a select class to hear the lectures of Dr. Buchanan on mesmerism, or what he calls "Neurology." Thinking that the Doctor would be gratified to place his own theory before his audience, in a clear and intelligent manner, and that he would in some degree be the expositor of the views of the more rational and intelligent mesmerists, I contributed my quota; and on repairing to the place of lecture, was surprised to find a large and miscellaneous assembly of ladies and gentlemen.

"I have attended on two occasions; and two lectures less interesting,—less satisfactory,—more devoid of order, arrangement, system, or sense, I never had the misfortune to listen to. At the close of the lecture yesterday evening, the gentleman who had submitted to be "operated on," and who had been exhibited to a wondering audience as sound asleep, as having his vision impaired or improved, his arm paralysed or strengthened, his senses affected as by intoxication, at the will of the operator —publicly declared, that neither on those two evenings, nor on other occasions in this city, at the houses of the prominent mesmerists, where he had been "operated on" with apparent magical effect, had he ever been put to sleep, or experienced the least impression from their manipulations or farcical mummeries; and that he was fully convinced the whole "system," so called, was a gross delusion and humbuggery;—in the expression of which opinion, the audience almost unanimously concurred by general acclamation. A. B."

Of course, no candid, unprejudiced mind, could sympathise with the severe censures which have been so indiscriminately heaped upon Dr. B. for suffering himself to be deceived in the way he did. It was his misfortune, to be sure, and one in which he should not have been involved, if all he assumes for his discoveries in "Neurology" be correct. For, it should be remembered, that he has with him a person who is capable, as Dr. B. assumes, of telling not only the precise location of the cerebral organs by the *sense of touch*, but who can, also, by this sense, tell the precise *state of the mind* of the person examined, as well as the exact state of the different physical organs. When he was in this city he assumed all this, and more, for Mr. Inman, on whom the Dr. did certainly seem to depend, as upon an oracle. Now, where was Mr. Inman all this while, that he did not *detect* the deception of that young student?

But the truth of the matter will be found to be, probably, by and by, that Dr. Buchanan was never more deceived by any one, than he has been (innocently, we doubt not,) by Mr. Inman. That Dr. B. was deceived by the dependence he placed on him and *one* other person in this city, we believe to be susceptible of the clearest proof. We have seen an account of some experiments, said to have been performed by Dr. B. on that other person in this city, published in the Morning and Evening Post, and yet, if we are correctly informed, that very "young lady of about 20," there referred to, has since acknowledged, that in some instances, at least, she did *feign* what she manifested under the operations of Dr. B. And thus, both the Dr. and Mr. Inman, as also the Committee before whom the experiments were made, were deceived.

Now, what we affirm is, that one assuming to have kndwledge of a process,* by which he can tell the *state of any person's mind* in a few moments, should not have been deceived, as Dr. B. was in this city, and since in Albany. But his being deceived no more proves him an imposter, than it does the others who were deceived with him.

That Dr. B. has been deceived by the dependence he has placed on what he calls the "Neuraura" of the human system, we are confident; and being deceived himself, of course he must have misled others. But we believe him to be a worthy man, and entitled to the respect and confidence of the public.

A Simple Magnet.—Davis of Boston, who is probably the greatest magnetician in the United States, lately showed us a simple method of producing a magnetic needle, a knowledge of which may often prove essentially useful in determining directions, where a regular compass cannot be readily obtained. The process consists in simply twisting a piece of wire or iron rod. Mr. Davis took a piece of the smallest kind of nail-rod, about six inches long, and fixed one end in a vice, twisted the iron (cold) two or three times round; and then balancing it on the point of a needle, the iron being slightly bent for that purpose, it readily assumed its true magnetic position of north and south. Such little discoveries tend to bring the most useful sciences within the

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* This process the reader will find described, in Dr. Buchanan's own words, in the eighth number of the Magnet, page 179.

reach of every capacity, and contribute largely to the prosperity of free and enlightened communities. —*N. Y. Mechanic.*

ANTHROPOLOGY.

MAN AND HIS DISEASES.

BY P. CUNNINGHAM, ESQ.

DISEASES.

There being only two distinct primary classes of vessels in the human body, viz, the recrementitious vessels secreting the solid parts thereof, and the excrementitious the fluid; so when increased galvanic action exists in either of them, that in the first must tend to increase the solid at the expense of the fluid parts, and that in the second to increase the fluid parts at the expense of the solid.

It is found, indeed, in chemical experiments, that two distinct species of action cannot go on in the same body at the same instant; a law which, as far as present experience extends, applies to the human body, the general theory of the cure of whose diseases has been that of translating the diseased action from one class of vessels or from one part to another, as the galvanic disease, as it may be termed, in copper, is translated to the iron in the Davyan preservers. From what has been said above, therefore, when increased galvanic action exists in one class of vessels, it must naturally decrease the action in the other class; so that by giving remedies to increase the action in the vessels where there is diminished action, you will diminish the action in the vessels where there is increased action; and by thus bringing the actions of the two classes of vessels to an equilibrium, you consequently cure the increased, or, in other words, diseased action, which exists in either.

Diseases being thus either recrementitious or excrementitious, the remedies employed to cure them may be divided into recrementitious and excrementitious, according to the class of vessels whose action they are capable of increasing. The recrementitious or fattening remedies are the black oxide of mercury, sugar, common salt, bitters, charcoal, the various non-purgative salts, and, in fact, the whole of the remedies known by the name of stimulants; all such, indeed, whose chemical analysis shows them to contain comparatively small proportions of oxygen in their composition; while the excrementitious or impoverishing remedies are the acids, and the various substances called narcotics, or sedatives, whose analysis shows them to contain comparatively large proportions of oxygen in their composition. Although there are different classes of solids, yet no remedies having hitherto been noticed, acting upon any one particular class without affecting the whole, therefore recrimentitious remedies may be designated as such whose general tendency is to increase every species of solid in the body; while on the contrary, different classes of medicines being found to act almost exclusively upon one particular class of fluid secretors, without affecting the others, consequently we have the appellations of purgatives, diuretics, sudorifics, and pytalists, according as they respectively increase the action of the excrementitious vessels of the bowels, the kidneys, the skin, or the salivary glands. As we are thus ignorant of any capable of curing increased action in one class of recrementitious vessels by exciting increased action in another class thereof, or, in medical language, of translating the disease thereto, we must consequently translate the disease to the excrementitious vessels, in order to effect a cure. As, however, we have remedies capable of increasing the action in one class of excrementitious vessels without affecting the others, so we are thereby enabled to cure excrementitious disease in one class by translating it to another class thereof, where it would be more under the power of medicine. This latter system of treatment can, however, by no means be depended upon, because the above remedies do not uniformly act upon the class of excrementitious vessels, which their titles designate them to do, but frequently upon other classes of these vessels; reputed purgatives often operating as sudorifics, and sudorifics as diuretics and pytalists. Therefore as a general rule, it will be as advisable to apply recrementitious treatment to excrementitious diseases, as excrementitious treatment to recrementitious diseases.

Recrementitious and excrementitious affections oftener occur as sequences of each other, than as isolated diseases; and hence, by curing or preventing the attack of the primary of the two, the attacks of the secondary are prevented also. Thus in intermittent, we have first excrementitious action indicated by paleness, shivering, and shrinking of the urinary discharge; to this succeeds recrementitious action indicated by great heat, thirst, fulness of pulse; and lastly, excrementitious action winds up the paroxysm, indicated by the profuse perspiration in which the body is drenched. Now, by preventing the attack of the first stage of the paroxysm, that of the others is prevented also, which is effected by the use of recrementitious remedies in the intervals of the paroxysms, such as quinine, brandy, port-wine, &c. Again, in scurvy, which has a recrementitious commencement, by administering excrementitious remedies, such as vegetable acids, &c., we not only cure the primary recrementitious disease, but the various excrementitious ones succeeding to it,—diarrhœas, ulcers, pytalisms, and the like. I have previously shown that both electric and magnetic, i.e. recrementitious and excrementitious substances, applied in a large amount to decomposable bodies, preserved them from destruction, by counteracting the galvanic action to which they were in insulated states exposed; and that when, on the contrary, applied in small amount to bodies, they tended to produce more rapid decomposition of them if the said bodies had been left in an insulated state.

The same law also holds good with a number of the medicines prescribed, whether these medicines be recrementitious or excrementitious, large doses of them seeming often to allay galvanic action, while small ones tend to increase it. Thus, calomel in large doses soothes and constipates, while in small doses it purges and gripes; the former thereby giving great relief in dysentery, while the latter usually increases the disorder, until the recrementitious action upon the body begins to be evinced by the tenderness and swelling of the gums. Quinine too, in small doses, is generally rather prejudicial than otherwise in intermittent, while in large doses it effects a rapid cure. The same remark applies to opium, which in small doses commonly excites restlessness instead of conducing to sleep; small doses of it in acute dysentery being also useless or hurtful, while large doses tend to the most happy results. Opium too, exhibited in large doses, before the cold stage of intermittent, either gently alleviates, or altogether prevents the same; a very pointed case of an excrementitious substance given in excess checking or altogether preventing excrementitious action. The same cessation of galvanic action in bodies therefore ensuing, whether electric-attracting or magnetic-attracting substances in excess be applied to them, we may consequently presume that either

electricity or magnetism, applied in excess, would produce a similar cessation of galvanic action; which most undoubtedly is the case with respect to magnetism, from the fact of frozen bodies suffering no decomposition, and is in some measure the case with electricity also, from cooked substances keeping longer than uncooked. The latter, however, are not fair criterions of electric and magnetic influence applied to the protection of bodies from decomposition, in consequence of the water, constituting their juices being mainly composed of the magnetic-attractive substance, oxygen, through which this water would assist the magnetism as much in its protective influence, as it furthered the decomposing influence of the electricity; and I doubt not, were the electric or magnetic wire applied singly to the above bodies, their influence would be found as protective against decomposition as the influence of salt acids, or any other electric or magnetic substance previously treated of.

In accordance also with these views, a combination of recrementitious and excrementitious remedies in the same disease must be either uncertain, or absolutely prejudicial; so that in recrementitious disease, excrementitious remedies should be solely employed; and in excrementitious disease, recrementitious remedies solely; the regimen being at the same time made conformable to the medicines, otherwise the one will necessarily counteract the other. In pursuing this course however, care should be taken to suspend the exhibition of the remedies the moment the action aimed at is induced, lest a disease of a different nature to the one under treatment should result, from pushing the above remedies too far. Thus in prescribing mercury as a recrementitious medicine, the moment tenderness and swelling of the gums and salivary glands appear, its further use should be stopped; because if recrementitious action in the above parts be further pushed, an excrementitious salivary disease in them will result, from which no good *can* arise, and much evil *may*, in consequence of the ready translation of diseased action, from one part to another, as evinced particularly in the recrementitious diseases, rheumatism and gout, and in the excrementitious actions consequent on phthisis, where the excretories of the bowels, the skin, the lungs and the urinary organs, are all in turn affected. I have before illustrated the impossibility of both recrementitious and excrementitious diseases subsisting, as general diseases, in the system at the same instant; but this does not hold good as far as local diseases are concerned: a local excrementitious disease being often found acompanying a general recrementitious one, and *vice versa*; so that in some cases a difficulty may arise as to the nature of the general action subsisting, in order that the treatment may be adapted thereto. I have found the relish or disrelish of vegetable acids, to be the best test of the species of general disease; a relish of them showing it to be recrimentitious, and a disrelish excrementitious; a relish or disrelish of sweet, salted, high-seasoned articles, or of spirits, similarly also exemplifying the species of disease. While one species of treatment therefore is applied to the general disease, another, or opposite species, is demanded by the local one. Thus the recrementitious disease, scrofula, often causes the tumours consequent on its action, to terminate in excrementitious suppuration and ulceration, to which we find it best to apply stimulant or recrementitious remedies; while sedative or excrementitious suit best the general disease: a long course of saline purgatives, with solutions of sulphate of zinc, lime-water, &c. to the sores, seldom failing of greatly relieving, if not curing the complaint.

All general diseases, indeed, commonly commence in local galvanic action, that action only becoming general, when important or extensive parts of the body are affected; the local pain necessarily pointing out the part where the electro-magnetism feeding the disease enters, being the part where the nerves conducting that electro-magnetism to the seat of disease terminate upon the skin; and here, therefore, the local remedies must be applied. In disease of the liver, therefore, I would blister or cauterise the part of the shoulder where pain most usually occurs in this complaint, and the same with the knee in disease of the hip-joint. Atomo-electricity, or heat, when locally applied, never fails of giving relief in local pains, its action being upon the principle already expounded of electricity in excess or magnetism in excess, putting a stop to galvanic action. The relief it affords is, in fact, similar to that produced by large doses of calomel in dysentery, expanding the parts in states of spasm, by the electricity which it directly infuses into them; while the calomel indirectly accomplishes this, by attracting the electricity from the atmosphere, through the medium of those pained parts. Heat, however, is but of little comparative service, and indeed is frequently prejudicial, unless the temperature at which it is first applied be kept unremittingly up, until the disease is subdued; so as to insure electricity being always in sufficient amount in the part to counteract the diseased action under which it labors. This point may be insured by the use of the stomach pan enveloped in flannel, the water of which can be readily changed on becoming too cold, and a constant uniformity of high temperature thereby kept up in the part. In all painful bowel complaints it acts like a charm, and I have found it equally successful in lumbago, and indeed in every local pain; while applied in several cases over poultices, its action has been similarly beneficial, obviating at the same time the trouble of their frequent renewal.

Cold applications have been also found highly useful in local diseases, as well as in fever, peritonitis, and other diseases of a more general nature; but I have always observed, unless their temperature was kept as uniformly low as that of hot applications was kept uniformly high, that the cure of the above was little advanced, if not absolutely retarded by them.

In considering salt and charcoal as powerful recrementitious remedies, I am amply borne out as to the former, not only by the universal experience of those engaged in the grazing of animals, where it is employed as a means of retaining them in health, but of the fatteners of them for slaughter, who so well understand the utility of it in that respect, as to have originated a proverb among them, that for every pound of salt you give an animal, you have a pound of fat in return. This applies well to its use on shore, where excrementitious remedies are always at command to check its pushing of recrementitious action so far, as to induce excrementitious disease; but on board ship it must necessarily be used more sparingly on the above account. Charcoal, although not hitherto given to animals with the above view, will, I doubt not, be found equally beneficial, from the natural predilection that many animals show for it, when they have an opportunity of indulging therein. Pigs are particularly fond of it, and in New South Wales seldom fail in paying daily visits to the places where timber has been burnt off, for the purpose of satisfying their longings. I was indeed assured, by a friend of mine, an old and highly respected merchant captain, that he knew an instance of a pig being stowed away, by accident, for a considerable period in a coal hole, which was

brought on deck, plump and fat, after discovery, although it had nothing but coals to subsist upon.

Charcoal and coal being both inflammable bodies, and both, I believe, good electric conductors besides, hence they must be recrementitious when judiciously administered to animals that relish them; because the liking or disliking of the palate are, generally speaking, the surest guides to go by, as to the beneficial or hurtful effects of articles of food. Similar views, indeed, apply to vegetable growth, the burning of soil in moderation increasing its fertility by imbuing it with a sufficiency of electricity to promote vegetable health, without proceeding so far in the burning as to injure vegetable life by the too great electric amount infused into the soil. Salt, lime, and ashes, in moderate quantities, are as salutary also in the above respect, as they are pernicious when an over dose is applied. The forcing beds of gardeners are made of a dark color, with a view only of attracting heat, but whatever attracts heat must be an electric remedy; and hence may, like salt and charcoal given to animals, exert an independent effect of its own upon plants, either from its absorption by them in an undecomposed state, or from decomposition by their digestive organs. Hence, I conceive, charcoal dust, and the dust of coal, would be highly fertilising applications to what are called poor soils, particularly those of white tenacious clay, on account of their not only imbuing them with a highly electric or recrementitious substance, but enbling them to absorb heat as well as to admit of a freer entrance of air and moisture, by the darkening of their color and the diminution of their cohesive qualities. Seeing the immense variety in the nature of the diet of different nations we are naturally impressed with the belief that human sustenance is almost illimitable, *habit* making that species of food delectable and wholesome to one, which is disgusting or even pernicious to another. In Peru, the natives make an agreeable meal by chewing the cocoa leaves and wood-ashes; in others, cakes of saw-dust mixed with meal are equally relished; while, in our own country, what numerous articles do we not use, disagreeable at the outset, but for which habit at last gives us a taste. In this word taste, indeed, lies the whole of the mystery, because the palate seldom relishes that which proves pernicious to the body; the complaint of articles much relished so often disagreeing, being readily traced, in most instances, to the person's too great indulgence in them, on account of the very relish above spoken of inciting to their immoderate use. Saw-dust has been converted, by a very simple process, into the highly nutritious article of sugar, and hence may not the stomachic juices be equally able to extract nutrition from saw dust, when accustomed thereto? Nay, may we not presume that as the advance of population drives the wit to its shifts for the sustaining thereof, that the science of chemistry may be able to covert many articles now thrown aside as refuse, into wholesome food; if the advance of the chemical science of cookery be not able to effect this, by means of the ingredients combined with it previous to submission to the electro-magnetic influence of the fire?

EPIDEMIA AND CONTAGION.

Seeing that oxygen and its active compounds, the acids, destroy epidemic miasma and contagion, we may consequently infer that their active properties depend upon magnetism. This is further corroborated by excess of epidemic miasma equally preserving the body from galvanic disease that excess of magnetism has been shown to do with dead matter, a fact all who have been in sickly countries must have noticed; ships being generally more unhealthy immediately after leaving a sickly port than when in it; the disease, indeed, frequently not breaking out until the vessel has been some days at sea. When detained on board a ship at Batavia, during the sickly season there, the shipping was not only more unhealthy than the town, but almost every person hired to work on board ship from the shore was seized with the prevalent fever, a few days after he had joined. Although we had only two men on the sick list when weighing anchor, before we were four days at sea a quarter of the ship's company, and myself amongst the number, were added to it.

Acid vapours destroy all kinds of bad odors; and hence also, these must I conceive, derive their active principle from magnetism, thereby accounting for their power of neutralising contagious influence by the intense magnetic medium with which they surround the body. It has also been remarked, that tallow-chandlers, oilmen, and all such as work much among strong odoriferous matter, are but little subject to contagious or epidemic diseases, while experience has instilled into mankind the belief that camphor and other strong-scented substances worn about the body preserve it from contagious influence, some of them probably deriving this power from containing electricity in excess, and others from containing magnetism in excess; either of which in sufficient amount, would tend, as before shown, to moderate galvanic action. Fumes of tar, camphor, and tobacco, have all been successfully used as anti-contagious fumigations, and indeed I mainly attribute my freedom from fever at Batavia to cigar-smoking, and my attack of it at sea to leaving the smoking suddenly off. A strong exemplification of the above view is afforded by garlic and similar strong odoriferous substances rubbed about the mouth and nose, not only preserving both men and animals from the attacks of the paralysing complaint denominated sorochi, to which they are exposed in travelling over the South American mountains, but also ckecking its further advances, when timeously made use of.

When we contemplate, however the different coloured and constituted parts of the human body, we may infer, that as each different part contains different proportions of oxygen and combustible matter, so each part will consequently attract different atomic proportions of electricity and magnetism for the furthering of its growth, the retaining of it in health or the feeding of the disease which brings on its decay; so the above magnetic or electric odours, by changing the atomic proportions of the pestiferous miasma, would destroy the power of exciting disease in the parts of the body to which their former constituency adapted them. We have an illustration of the above view, of various proportioned electro-magnetic atoms being required in the human body, by what we see exemplified in vegetable substances, each different vegetable requiring a different colored earth to thrive in, showing that each required differently constituted sun's rays to keep it in health. Some of the ingenious New England men have indeed gone so far, as in some measure to obviate this necessity of particular coloured soils, by painting the stems of their different fruit trees of a tint which experience has taught them to be most conducive to the perfection of the various fruits. That contagion and epidemic miasma have magnetism in excess in their constitution, is evidenced by the attacks of epidemic & contagious diseases invariably commencing with depression of strength, sleepiness, and chilliness, as well as in unhealthy vapours exciting these very sensations. A medical gentleman of Arequipa informed me that while riding early in the

morning through a dense vapour through the unhealthy valley of Vitor (Peru), the sense of cold and drowsiness was such as almost to incapacitate him from retaining his seat, it being only through constant quaffing of port wine that he was enabled to do so, finishing a bottle easily without being intoxicated thereby, on other occasions a few glasses were more than his constitution could stand. The constant westerly tendency of the various malignant diseases that have desolated the world, is a further collateral proof of the electro-magnetic composition of the malaria which cause them, being obviously moved westerly by the same sol-lunar influence moving the waters of the ocean in a westerly direction, thereby giving rise to the tides. The rapid descent of rivers through the attraction of the current, and their rapid passage along highways and other places where the winds attracting them have least obstruction, similarly tend to confirm the deduction above drawn.

After an epidemic disease, however, has once commenced, an accumulation of the particularly constituted electro-magnetic particles, to which it owes its existence, will naturally take place round the patient, not only by attraction of them from the atmosphere, but by emission of them from the body after having performed their baneful functions there, so that by an accumulation also of patients, the electro-magnetic particles will become, at last, so intense, as to be capable of exciting the same disease in persons exposed to their influence, or, in other words, the disease will become contagious. Hence, many epidemic and endemic diseases at last assume a contagious form when the patients are crowded, or proper ventilation and cleanliness not attended to. As these electro-magnetic particles may be attracted by bodies which have not the power to decompose them, they may in this way be transported in merchandise from place to place, and thereby spread the disease. Hence, therefore, the quarantine regulations seem founded in reason; but as the sooner this contagion is destroyed, and the merchandise distributed, the less is the chance of its spreading, and the greater is the benefit conferred upon commerce, consequently the vessels cannot be unloaded, and their cargoes purified and disposed of, too quickly. For this purpose two large floating hulks should be anchored in places to which the winds have free access; their middle decks, set apart for the cargoes, being constructed of open grated work, to admit readily the vapours and wind currents by which the cargoes were to be purified, and with jutting frame works projecting out in a fan-shape from the stern and bows, and numerous ports all around, their construction would be complete.

When the cargo was arranged in the middle decks, the ports should now be shut close and the fumigating vapours made to ascend upwards through it from the deck below, after a few hours exposure the ship might be hauled head or stern to wind, the ports opened, and the breeze allowed to blow freely through, until a thorough purification was effected. As the detention in quarantine of such cargoes as are incapable of decomposing the contagious miasma can do no good, therefore the exposure of all such to the purifying process is the only way of avoiding contagious introduction; but as all strongly odoriferous substances, such as spices, oils, &c. will accomplish their own purification, hence they require no quarantine restrictions to effect this point, and by indeed mingling camphor, spirits of turpentine, or other odoriferous matters with merchandise, such as cotton, incapable of self-purification, the whole of the vexatious quarantine regulations might, I conceive, be safely dispensed with.

Persons employed, however, in quarantine hulks, should guard against contagion by cleanliness, rubbing of their bodies daily with camphorated oil, and wearing of wire masks over their face when exposed to its influence. The lungs being more susceptible than the skin, as well as being more central as respects the body, and more near the vital parts; hence it is probable that infection generally enters the body through this channel, and therefore the avenues to the lungs cannot be too strictly guarded. The wire mask would, I conceive, effect this purpose, on the same principle that it prevents offensive odours from suffocating the person exposed to them, and flame from setting inflammable vapours in combustion when an insulating wire frame surrounds it. The whole superficies of the wire being surrounded with a covering of mass-electro-magnetism, hence when the openings were sufficiently *small*, no particles of matter, possessing a large proportion of either magnetism or electricity, could pass through the crevices, from being attracted or repelled either by the magnetic or the electric mass enveloping the wires.

The Davy lamp will, I conceive, answer the purpose for which it was intended no longer than the wires remain free from incandescence, because the moment this is attained they will naturally ignite the combustible gases in their vicinity. As an incandescent wire is found to ignite every highly inflammable substance exposed to it, the incandescent wires of the lamp must be capable of doing the same, the fallacy in the lamp being a preservative against explosions, probably arising from the greater portion of the combustible gases in the trial jars being decomposed *before* the lamp wire became red hot.

HEMISPHERIC INFLUENCE ON DISEASE.

The northern hemisphere attracting magnetism toward the earth, and the southern repelling it therefrom, will consequently cause it to be more intense near the earth in the north, and less intense near the earth, and therefore more equally diffused through the atmosphere, in the south; which diversity of magnetic attraction will consequently tend to make excrementitious diseases less common, though more virulent, in the northern hemisphere than in the southern. Electricity again being repelled, from the earth in the northern hemisphere, and attracted thereto in the southern, will tend to make recrementitious diseases, on the contrary, less common though more virulent in the southern hemisphere than the northern.

The above hemispheric attractions and repulsions will also tend to make the upper parts of the body more liable to recrementitious diseases than the lower parts thereof in the northern hemisphere, and consequently *vice versa* in the southern; while the reverse will necessarily apply to excrementitious diseases, the upper parts of the body being most liable to their attacks in the south, and the lower parts thereof most liable in the north. Besides the respective electric and magnetic tendencies toward the upper and the lower parts of the body, through the medium of the nerves and the blood vessels, the opposite polarities of the human body in the two hemispheres, must also have great influence upon diseases affecting respectively the upper or lower parts thereof. Thus in the northern hemisphere, mass-electricity occupies the superfices of the upper part of the body and mass-magnetism the lower; while in the southern hemisphere mass-magnetism occupies the former, and mass electricity the latter; a reverse of polarity which must doubtless influence greatly the diseases of the above parts. In the

southern hemisphere excrementitious diseases, such as dysentery, diarrhœa, bronchical consumption, and dropsical affections, are more common, though less virulent than in the northern hemisphere; while on the contrary, the recrementitious diseases, scrofula, and tuberculous consumption, so common in England, are there scarcely known. Throughout the whole continent of New Holland, yet settled by Europeans, intermittants and remittants are so rare as never to excite alarm even in the most marshy places, and also so mild as to yield readily to medicine.

Though more common throughout the Brazils, yet there also they are mild and tractable, being common however in the irrigated valleys of Peru on account of the greater vegetable decomposition, and bad ventilation, from the south-easterly winds, so constantly prevailing in Peru, blowing across instead of along them. Mania, evidently a recrementitious or electric disease, is equally rare, I might almost say nearly unknown, among the natives of the southern hemisphere, where I have made inquiries; the recrementitious diseases having a greater tendency here towards the lower extremities, and hence the prevalence of elephantiasis in southern climates; while, in the cases of scurvy there, I have observed that while the feet and legs were intensely tumefied and bloated, the gums were comparatively but little affected. In every part of the northern hemisphere, intermittants and remittants are severe in their attacks, while it is only in certain parts of the southern hemisphere, near the equator, that the above diseases show a virulent type, which I conceive may arise from the annual shifting of the equatorial neutral line by the sun's influence, through which the northern electric zone is made to approximate annually upon the southern hemisphere, and the southern magnetic zone upon the northern hemisphere. To this also may be owing the frequency of elephantiasis at Barbadoes, and other places in the northern hemisphere near to the equator. From the above views, therefore, a change of hemispheres in various untractable diseases might be attended with the most salutary effects, transposing for instance scrofulous, maniacal, and tuberculous consumptive cases to the south, and bronchial, consumptive and other excrementitious diseases to the north. In fact I never heard of a case of scrofulous consumption removed to New South Wales, sufficiently early, where a cure was not effected. In scrofulous families indeed, a removal of children to the south for education would, I am confident, be attended with the most beneficial effects upon their future health, by freeing their constitution from a disease as untractable as loathsome, and which when attacking the lungs consigns thousands yearly to an early grave.

Nor would the similar removal of the southern children to the north be unproductive of useful results, conferring, as it would, upon them more animation and intellectual vigour, though at the risk of impairing their prudence and judgment, and of imbuing their constitutions with the seeds of some of the fatal diseases to which the northern hemisphere is exposed.

From the necessarily more equable diffusion through the southern hemisphere of all magnetic bodies capable of diffusion by the hemispheric repulsion, I conceive therefore that should the plague, cholera, and other excrementitious diseases ever be introduced into the southern hemisphere, they will be infinitely milder than in the northern, though attacking probably a larger portion of the population.

As electricity and magnetism have been shown to be attracted by particular substances, and repelled by others, hence on this account the varied composition, as well as colour, of the earth's strata may vary the density, and consequently the attraction and repulsion of the electric or magnetic mass enveloping their superfices, and thereby vary the nature of the hemispheric locality as to the effects produced by it upon the human constitution. Such a local increase or decrease in the depth of the zone, would, according to the increase or decrease effected by it in the amount of electricity or magnetism in the atmosphere, affect the human constitution, independent of differences of atmospheric density, or atmospheric vapour, which have been the only causes hitherto assigned for the beneficial or baneful effects which change of locality are observed to produce in diseases. The changes, in the nature of the daily food, which the human appetite craves for, show that such changes are requisite for the healthy fulfilment of the bodily functions; and may we not similarly conclude with respect to the lungs, that occasional changes in their food are also highly conducive toward the attainment of the above point.

MOON'S INFLUENCE ON DISEASE.

That the magnetic rays radiated from the sun to the moon, are more intensely reflected or radiated by the latter to the earth, than the electric rays, is evidenced by the moon's rays being not only destitute of heat, but by their producing similar effects in the bodies upon which they impinge to the magnetic or deoxidising rays of the sun. Thus the moon's rays, by their oxygenous attraction ripen fruit and grain, promote animal and vegetable decomposition, tarnish colours, and extinguish combustion equally with the sun's deoyxdising rays: these effects, however, being more strongly manifested in the more tropical latitudes, where their rays are necessarily more powerfully showered down by the moon, and in the lesser clouded countries, where there is less impediment to their descent. Ship's stewards are so well aware of this that they will sooner expose meat and vegetables to the sun's rays in these countries than to the moon's; the former, by their electric action, drying up and hardening the exterior of the meat, and thus forming a protecting crust around it, similar to the protecting tin cases in which meats are now preserved; while the latter being incapable of forming such a crust, the meat is consequently left exposed in its moist state to the deoxidising influence of the rays,—moisture being in a great measure, indispensable to both animal and vegetable decomposition.

It is to the formation of this protecting crust that we may partly ascribe the preservative influence of the pyroligneous acid, when applied to the exterior of meat; and it is to the reabsorption in the dark, of that oxygen extricated by the light, upon which the colors of bodies depend, that we may ascribe the curious fact of our tarnished coats appearing nearly "as good as new" after being deposited some weeks in the lumber chest. Seeing, therefore, the powerful influence of the moon's rays in the decomposing of bodies, we may readily account for the greater prevalence of particular diseases during full moon (as remarked by the olden physicians), from the sun and moon's magnetic rays acting then *simultaneously* together, and consequently causing a greater vegetable putrefaction. The curious fact vouched for by Ulloa, of the hollow stem of a species of reed at Guayaquil, always filling with water at new moon, and ebbing therefrom as she waned, might tend to the belief that she would exert a similar attraction upon the blood, and hence excite diseases of the cerebral functions. Many lunatics are certainly worse at particular periods of the moon; but this is

more likely owing to the influence of her rays than of her attractions. Nearly all the patients who applied to me for relief in Peru, more particularly the rheumatic ones, complained of an aggravation of symptoms during full moon.

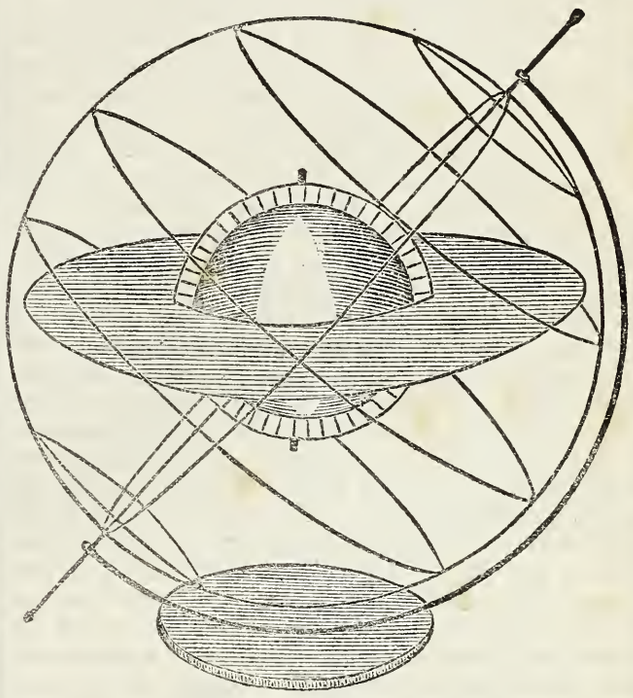
The cause of the sun's electric rays not being radiated to the earth by the moon equally with his magnetic rays, may be owing to the lesser velocity of the latter enabling them to be the more easily attracted by the earth, as, in a similar way, the lesser velocity of cometary bodies, when distant from the sun, seems the only apparent cause why the distant planets attract more moons round them than the near. The lesser velocity of the magnetic rays than of the electric seems probable from their easier atmospheric refraction; while the sun, which thus contains the power of more strongly repelling these electric rays, by which their greater velocity is acquired, may be also presumed to contain a power equally strong of attracting them back again, after performing their various important functions in the universe; so that the electric rays radiating from the moon, by being more strongly attracted back by the sun than by the magnetic rays, would be less liable to be attracted by other planetary bodies than the latter, and consequently have their influence less felt throughout them.

The manner in which I conceive the electric and magnetic atoms are repelled from and attracted back by the sun, I have endeavoured to explain in the chapter in the preceding essay relative to the latter. But if such a power be possessed by the sun of attracting back the electric atoms more strongly than the magnetic, this power must necessarily centre in his magnetic zone, and therefore it may be presumed that his electric zone will possess an equally strong power of attracting back the magnetic atoms; so that both being thus attracted back with equal power to the sun, it might be inferred that no increase of cold would take place in consequence of the sun's setting, seeing that magnetism, the principle of cold, was attracted back to him equally with electricity, the principle of heat. If however the greater refrangibility of the magnetic rays than of the electric be ascribable to their slower motion, this latter must be owing to their less powerful expulsion from the sun's magnetic hemisphere, thereby evincing that the repulsion of magnetic atoms for each other is less powerful than that of electric atoms for each other; so that while the majority of the latter will be propelled thereby into the higher regions of the atmosphere, and thus brought within the sphere of the sun's horizontal attraction even after his setting, the majority of the former will, by reason of their lesser repulsion for each other, be retained nearer the earth, and consequently out of the sun's horizontal attraction, until he rises again in the east. The weaker repulsion of the magnetic than of the electric atoms for each other, seems borne out therefore by their easier atmospheric refrangibility, as well as by their remaining near the earth's surface, after the majority of the electric atoms have vanished therefrom; for as heat and light always move in straight lines, except when a resisting medium interposes, so the sun would naturally have more power in attracting the electric than the magnetic atoms, when he was below the horizon, in consequence of their higher ascension in the atmosphere bringing them within the sphere of his horizontal attraction and thereby enabling them to radiate in *straight* lines toward him. To the above may be ascribed the sudden fall of temperature so often experienced towards day dawn: while the increase of brittleness and diminution in volume of bodies exposed to extreme cold, serve as further collateral proofs of the weaker attractions as well as repulsions of the magnetic atoms in comparison to the electric; because if their repulsive powers be weak, their attractive powers will naturally correspond thereto.

MAGNETISM.

For the Magnet.

VALE'S GLOBE AND CELESTIAL SPHERE.



DESCRIPTION AND USE.

The instrument has a small globe in the centre, the rest is worked brass, except a mahogany foot. It is, in fact, an armillary sphere, with a moveable horizon, (the broad flat surface, also of brass, within,) never before applied to the sphere; and by which the problems are performed, and the whole instrument rendered useful; a substitute for globes, or an elegant companion to them.

The lower external wire, now of thick brass, engraved, slides in the foot, and this gives to the instrument any position; the external wires, exclusive of the one just named, represent the principal circles in the heaven, which correspond to similar circles on the earth, as the equinoxial, tropics, arctic, and antarctic circles, with the meridian; these are all of brass, and they are cut and engraved for use which are needed. The instrument, as now manufactured, has also the ecliptic, cut, and engraved, a large circle not represented in the above cut.

To the globe within is suspended a moveable horizon, the broad surface represented in this figure; this, now of thin sheet brass painted and engraved, with the compass and degrees; it is attached to a double brass circle or meridian, which moves on and about the globe in any direction, carrying with it the horizon; thus the little black figures on this moveable meridian represent persons, antipodes of each other; and these, by moving to any part of the globe, and carrying with them their horizon, as in nature, always represent the relative position of the earth and heaven in *any* situation on the globe. Thus: move the upper little black figure in the cut, to the equinoxial, or middle circle, on the sphere, then the horizon will coincide with the poles, as in fact to an inhabitant at the equator; the sun, the stars and all heavenly bodies will describe semi-cir-

cles above the horizon, and consequently below, as in nature to an inhabitant so situated; and the instrument will show that to such an inhabitant the *days are always* twelve hours long, and consequently the nights the same, (at the equator) and the poles of both earth and heaven are in the horizon; and the instrument shows that the polar star has *no altitude*, except its little distance from the pole. Now move back the little black figure to its situation in the cut, supposed to be New-York. Then the N. pole of the heaven is elevated above the horizon, and the South depressed just as much as the spectator is removed from the equator, and that the elevation or depression shows the latitude of such spectator, or of New-York. Now if the sphere be revolved round the globe in such situation it will show what part of the sphere never goes below the horizon, and what part never rises above; and this will explain why some stars are always visible every starlight night; and as the sun is on the equinoxial (represented by the next circle to the middle, above,) at midsummer, and as the sun is in the tropic of Capricorn, represented by the next lower circle to the middle or equinoxial at mid-winter, then the position of these circles in the figure above represents the phenomena of the sun and earth, at those seasons; thus: where these circles cut the horizon, the position of the sun at rising is seen, at mid-summer, spring, and mid-winter; thus: at mid-summer the sun is seen to rise and set away from the east and west, towards the north, or upper side; and in the winter the sun rises and sets near the south pole; and in the Spring it rises due east and sets due west. The meridian or mid day altitude of the sun is seen at each of these seasons where they touch the outer circle above the horizon; showing a small mid-day altitude in Winter, a large one in Spring, and the largest at mid-summer; and these altitudes mark when such seasons begin astronomically, and afford the means of correcting almanacs. ☞ The parts of these circles above and below the horizon, show the proportion of day and night, at each season; thus the larger portion of the upper of the three middle circles or tropic of Cancer is above the horizon, and a smaller part below; the upper represents the proportion of day and the lower that of night; the lower of the three middle circles represents the reverse position of the other, for on this there is a small portion of the circle above the horizon, and a large portion below; showing short days and long nights at that season to the inhabitants of New-York, but the reverse to the antipodes.—By marking the situation of the moon, or planets, as taken from a scientific or nautical almanac, their relative position for any hour of the night can be shown; and by placing the instrument due north and south, and by marking the horizon with the figures, 1, 2, 3, &c., wherever the upper axis of the sphere throws its shadow at those hours, you make a *perfect* sun dial to the place the globe then represents, which you can alter or arrange to any part of the world.

We have used this instrument several years; its principle was the same, but it was not well made; it is now beautifully manufactured; elegant in its motions, and appearance, and durable in its structure. We think it ought to be introduced into all our schools and genteel families, for its use, its simplicity, and cheapness.

By this beautiful instrument, all the problems on both Terrestial and Celestial Globes are performed in a simple manner, conformable to the real motions of the Earth and heavenly bodies.

This instrument will illustrate also the most difficult problems of Spherical Trigonometry, and show the reasons for the rules by which they are resolved; thus aiding essentially the mathematical scholar of the most elevated class. It is also a Universal Sun-Dial, and from its simplicity and elegance adapted to the youngest scholar, male or female. It is at once a Companion to the Globes and a parlor ornament. PRICE $12,00.

The above price includes a neat packing box, cover, and book of instructions, containing a clear illustration of the elements of astronomy, and all the problems on both globes, (celestial and terrestial) with the manner of working them on the above instrument.

This instrument has been patented, and is manufactured *at his Nautical and Mathematical Academy, 94 Roosvelt Street, New-York.*

By G. VALE.

Jan. 29. 1843.

MANUAL OF MAGNETISM,

Including, also, Electro-Magnetism, Magneto-Electricity, and Thermo-Electricity, with a Description of the Electrotype Process. For the use of Students and Institutions. With One Hundred original Illustrations. By Daniel Davis, Jun., Magnetical Instrument Maker, No. 11 *Cornhill, Boston.*

The above is the title of one of the best works of the kind ever published. It makes a 12mo. volume of some two hundred pages, and is admirably adapted to give a just conception of the elementary principles of the subjects on which it treats, and should be used as a text-book in every school throughout the country. We are indebted to the kindness of the author for the use of some of his cuts, which we shall find a place for in succeeding numbers of the Magnet; and hope the following extracts will induce the reader to extend to this Manual, that patronage which its intrinsic importance so richly deserves.

ATTRACTIONS AND REPULSIONS.

The effects produced by the opposite poles of a magnet, though in some respects similar, are in others contrary to each other; the one attracting what the other repels. Poles of different magnets, of the same name, that is, both north or both south, are found to repel, while those of an opposite name attract each other.

The intensity of the attraction or repulsion exerted between two magnetic poles, varies in the inverse ratio of the square of their distance; that is, if the distance of the poles is doubled, the force with which they attract or repel each other is reduced to one quarter of its previous amount; if their distance is trebled, to one ninth; and so on.

These attractions and repulsions are not affected by the interposition of glass or metal, or any substance whatever between the two magnets; unless the interposed body is itself susceptible of magnetism.

Whenever a piece of iron, is brought near to one of the poles of a magnet, the iron becomes magnetised by introduction, as will be explained hereafter, chapter II, sect. I; and the extremity nearest the pole acquires an opposite polarity to that of the pole while the end farthest off acquires the same polarity. Thus the point of the arrow indicates the north pole of the magnet; and the extremity of the iron bar will acquire a south polarity. It follows from this that it is only that part of a fragment of iron nearest to the pole of a magnet, which can be attracted by that pole, while the part most distant must be repelled. If the fragment of iron has any considerable length in proportion to its breadth, the end which

is repelled will be at such a distance from the influence of the magnet that its repulsion will be overpowered by the attraction of the extremity which is near it. If, however, the fragment is very short, so that the repelled pole is brought very near to the magnet the repulsion will be proportionably stronger and the attraction will be neutralized to a considerable extent; and, finally, if the fragment of iron is made of such a form as to bring the two opposite poles as near to each other as possible, so as to expose them both nearly equally to the influence of the pole of the magnet, the attraction will become scarcely perceptible.

MAGNETIC TOYS.

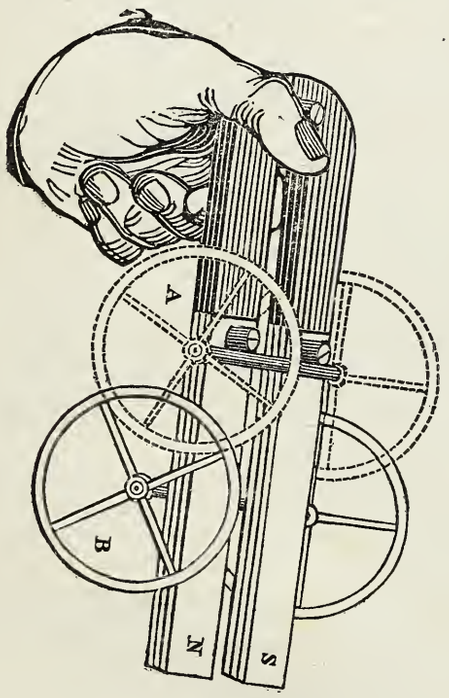
Various magnetical toys are constructed to exhibit the effects of the attractions and repulsions, described in § 62, such as swans, ships, fishes, and other figures with magnets concealed within them, and intended to float upon the water. When thus floating, they may be thus attracted or repelled over the surface of the water at pleasure by means of another magnet held in the hand.

FLOATING NEEDLE.

A very fine and perfectly dry sewing needle, being previously magnetized and then laid carefully upon the surface of water, will float, and being thus at liberty to move freely in any direction, may be conveniently used to show the above-described attractions and repulsions. A larger needle will answer equally well, if passed through a small piece of cork, that it may float.

ROLLING ARMATURE.

This apparatus consists of a compound horse-shoe magnet and an armature, consisting of an iron wire whose length is a little greater than the breadth of

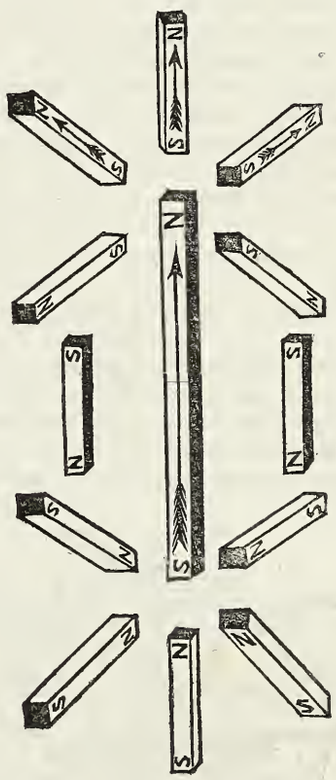


the magnet, so that when applied to it the extremities may project a little beyond its sides. To each of these extremities a small fly-wheel is attached. This armature is then placed across the magnet, at some distance from the poles, as seen at A, and the magnet is held in such a position, with the poles downward, that the armature may roll towards them. When it reaches the poles, the magnetic attraction for the iron axis will prevent its falling off, while the momentum acquired by the fly-wheels will carry it forward and roll it some distance up the under side of the magnet to B in the figure; and by varying the inclination of the magnet N S, the armature may be made to roll from A to B, and from B to A, at pleasure.

It result from what was said in § 65, that the action of a magnet upon a mass of iron is not simply an attraction or repulsion of it as a mass, causing it merely to approach or to recede; but that there is a complicated reciprocal action between the poles of the magnet and those which the mass of iron assumed.

The directions thus assumed by an iron rod brought near a magnet depend upon the much greater facility with which the bar receives polarity in the direction of its length than transversely. Thus if the bar is placed on one side of the magnet, at right angles to it, and opposite its middle, it would remain in this position instead of turning itself parallel to the magnet, were it not for the difficulty of developing the two polarities on its opposite sides.

A steel magnet does not experience that change in the distribution of its polarity, by altering its position with regard to the fixed magnet, which the iron bar does. Hence, the experiments above described are better performed with a *magnetic needle*, which may be suspended by a thread, or, which is better, supported by a pivot, and thus held in various positions near to a bar magnet. The needle being a permanent magnet, and having been powerfully magnetised by the process to which it has been subjected in the manufacture, the action of its poles will be more decided than that of the poles of a bar of iron magnetized only by temporary induction.

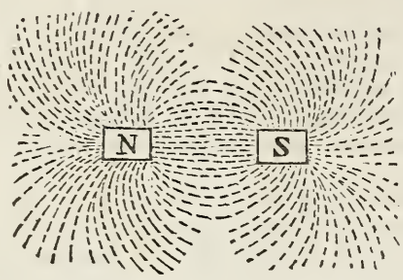


By passing such a needle carefully around a bar magnet, it will be found that it will assume positions in relation to it, as represented in the above cut.

These effects, produced by the combined attractions and repulsions of the magnetical poles, may be also rendered sensible in a very satisfactory manner by the following experiment.

Spread a thin covering of iron filings or ferruginous sand over a sheet of paper, and place a powerful horse-shoe magnet vertically beneath it, with the poles very near to the paper. The dotted lines in the cut show the arrangement which the particles of iron will assume. Each one becomes a magnet with

its two poles, and connects itself with those adjoining it, so as to form curved lines of a peculiar character. This experiment may be performed in a still more satisfactory manner, by supporting the paper



with the magnet in contact with its under surface, and then showering down iron sand or iron filings from a sand box held some inches above. The particles of iron, as they strike the paper can thus more readily assume the positions to which they tend under the magnetic influence.

The lines formed by the filings afford a good experimental illustration of what are called *magnetic curves*, that is, the curves into which an infinite number of very minute magnetic needles suspended freely would arrange themselves, if placed in all possible positions about a magnet. When the particles are very small, the attractive force exerted upon them by the magnet, being the difference of its action upon the two poles of each particle, is exceedingly slight; while the *directive force* is very considerable. The direction assumed by each particle, and consequently the form of the magnetic curve connecting any point on one half of the magnet, with the corresponding point of the other half, is deducible on strict mathematical principles from the laws of magnetic attraction and repulsion. The curvature of the lines is due to the combined action of the two poles of the magnet. If only one pole acted on the minute particles, they would arrange themselves in straight lines, diverging in all directions from the pole, like radii from the centre of a sphere. This may be partially shown by placing a bar magnet perpendicularly under the paper which is strewed with filings, with its upper pole close to the sheet.

The dipping needle will assume, also, in various latitudes the directions exhibited in the annexed diagram, fig. 34, where the point of the arrow indicates the north pole and the feather the south pole of the needles placed around the globe. The angle which

the needle makes with the horizon at any place, is called the *dip*, at that place. The tendency of the needle to dip is counteracted in the mariner's and surveyor's compasses, by making the south ends of needles intended to be used in northern latitudes, somewhat heavier than the north ends.

In fig. 34, M represents the North American magnetic pole near S the north pole of the earth. The line L V is nearly the present *line of no variation*, (see § 98) and the curved line at the centre is the magnetic equator, or where the dip is at zero, and the direction of the dipping needle is the same as that of the horizontal needle.

By comparing the directions assumed by the needle in its various positions in respect to the earth, as represented in fig. 34, with those assumed by a magnet in reference to another magnet, as illustrated in sect. 72, it will be found that there is a great analogy between them. This analogy led to the opinion which was for a long time entertained, that the earth was itself a magnet, or that it contained within it large magnetic bodies under the influence of which the magnetic needle assumed these various directions; just as a small needle assumes such directions when brought in various positions near to a bar magnet.

But there is another mode of accounting for the directive tendency of the magnet in respect to the earth; and that is by supposing, instead of magnetised bodies within the earth, lying parallel to the direction of the needle, currents of electricity passing around the earth, within it, but near the surface, at right angles with that direction. This would identify the directive power of the needle in respect to the earth, with its directive tendency in regard to a current of electricity, as described under the last head, instead of with respect to another magnet. And this is, in fact, the view which philosophers are inclined to take of the subject. The theory, however, is yet unsettled; and in fact all these three forms of directive tendency may hereafter be shown to be identical. In the meantime the phenomena being distinct, they may properly be arranged in different classes.

Lay a fine sewing needle, unmagnetised, upon the surface of water, where if it is perfectly dry, it will float, and it will be found that it will lie nearly indifferently, in any position. Then magnetise it, by touching it with any magnet, and replace it upon the water, in a direction east and west. It will immediately turn and assume a position in the magnetic meridian, that is, nearly north and south.

Place a magnetic needle upon its pivot so that its north pole turns towards the north. Then take it off its pivot and draw the north pole across the north pole of a strong magnet, and the south pole of the needle across the south pole of the magnet. On replacing it upon its pivot it will be found that the pole which was previously north will now turn towards the south, and the south pole towards the north. In this way the poles of the needle may be reversed at pleasure.

To prove that the inclination of the dipping needle is not occasioned by the greater weight of the north extremity of the needle used, reverse its poles, as described under the last experiment, and then what was before the south pole will be depressed, the pole which was previously north being elevated.

The direction of the needle in respect to the earth is not fixed. Its *variation*, that is, its deviation from the true geographical meridian, is subject to several changes, more or less regular. So also is the intensity of the action exerted on it by the earth as shown by the number of oscillations made by it in a given time. When examined also by means of apparatus constructed with great delicacy, the needle is found to be seldom at rest, but to be actuated with incessant fluctuations and tremulous motion, a phenomena supposed to comport more easily with the idea that electric currents constitute the influence by which is controlled, than that its position is governed by the power of fixed permanent magnets in the earth.

THE

MAGNET.

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PATHETOLOGY.

For the Magnet.

INTERESTING EXPERIMENTS.

Mr. Editor—The writer of the following discoveries has nothing to offer by way of apology for presenting them to the public, through the Magnet, but a sincere desire to extend the knowledge of a science (as he believes it to be,) so wonderful and interesting, and not less beneficial to mankind. The manner in which I propose to bring the subject before the public, is to follow the steps by which the discoverer himself has been led to produce the results.

As the phenomena was universally called Animal *Magnetism*, I was naturally led to conclude that it might, in some way, be connected with mineral magnetism, and accordingly instituted the following experiments.

Having pathetised a sensitive subject, I applied a common horse shoe magnet to different parts, and found, when applied to the temples, the effect too powerful and shocking to admit of experimenting.

I next tried a subject less sensitive, and found that when I held the north pole of the magnet to the right side of the head, and in front, the head seemed to be repelled by the magnet; but when I held the *north* pole of the magnet to the *left* side of the head, it seemed attracted; and if the *south* pole of the magnet was held to the *right* side of the head, it seemed attracted, and if held to the *left* side it was repelled. I next applied the magnet to the finger's ends, and found the same effect was produced. Hence, the only conclusion, in my opinion, is, that the right side of every person is north, or has north polarity; and the left side is south, or has south polarity.

But for reasons hereafter to be explained, I prefer to call the right side of a person *positive*, and the left side *negative*.

Contemplating further on the subject, I considered that I always sat facing the subject to be magnetized, and that my right hand came in contact with the subject's left side, and vice versa. So that the operator's positive side, and the subject's negative, are brought into contact, and should attract each other.

Now, I believe it is generally known among the operators, that when a subject is pathetised, if the right hand or arm of the operator suffers pain by being pinched, the left hand or arm of the subject feels the same sensation. I was therefore led to conclude that if the right hand of the operator could pathetise the right side of the subject, and the left hand the left side, this sensation in the subject, ought to be reversed.

2. I have never yet been able to affect a subject with his arms crossed, but having pathetised in the usual way, I have crossed my arms and continued the manipulations a few minutes, when I found the sensations of my subject were really reversed; so that when I took anything cold or hot in my right hand, it felt cold or hot in the right hand of the subject; or in my left hand, it felt the same in the subject's left hand.

3. My next experiment was still more wonderful. Believing that the phenomenon was magnetic (as its name imports) I was led to try experiments in the phrenological organs with steel magnets. For this purpose I procured two pieces of steel, four or five inches long, and gave to the one *south* polarity, but no north; to the other *north* polarity, but no south. Being thus prepared, and my subject well pathetised, I held the north pole magnet to an organ on the left side of the head, and found that organ immediately and intensely excited to action. Withdrawing this magnet and placing the other, the south pole magnet, to the same organ, the faculty of that organ was instantly paralyzed. The same is true with regard to the right side of the head; in which the south pole magnet excites an organ, and the north paralyzes it. It should be recollected here, that the right side of a person is north, or positive; and the left side south, or negative: and the two north and two south poles always repel each other. Now take two such magnets as those described above, apply them to either side of the head; say the right, or positive; select any two organs, say veneration and mirthfulness; place the *south* magnet over veneration, and the *north* over mirthfulness. Veneration is excited, and mirthfulness is depressed: the thoughts and conversation of the subject are grave and solemn. *Change* the magnets: place the south magnet over mirthfulness, and the north over veneration; mirthfulness is excited, and veneration paralyzed; the conversation of the subject is immediately changed from the solemn to the gay and lively. Thus, these two little pieces of steel may be alternately shifted on the two organs for any length of time, and the subject as often changes the drift of thought and conversation. This would prove the phenomenon of pathetism to be magnetic. But in almost all cases of my operations, I have thought I have discovered electrical phenomena, too numerous to be here mentioned. Now if it be electrical phenomenon, my inferences were, that the operator draws the fluid from the subject under operation, to produce the effect, and if subjects could be cut off from all communication with the earth and other bodies, from whence they might draw electricity as the operator takes it from them, they would pathetise easier. This, therefore, was my next experiment.

4. I seated my subject on an insulated stool. The success was wonderful, beyond my most sanguine expectations! Soon after the commencement of the operation, the subject, (to use her own expression,) was all on fire. Phosphorescent light, (for it appeared more like it than sparks of electricity) were for a short time only seen to follow the fingers over the face and hands, as the brushes were made over those parts, but none were seen on the dress of the subject.

More wonderful yet! I noticed after the subject was partially pathetised, if I ceased manipulations a short time, she would receive a shock from my fingers when laid on again; of course I continued the manipulations without ceasing, until the subject was completely asleep. I then laid my hand on the stool on which the subject was sitting; the result was as I anticipated: the subject received a most powerful and distressing shock, which waked her, or brought her out of the sleep, and no inducement will tempt her to suffer a repetition of the experiment. But this experiment, though completely satisfactory, to show the phenomena to be electrical, needed another of a different character. If the phenomenon occurred in consequence of the subject being insulated, it ought to follow, if the subject is immediately connected with the earth, no phenomena ought to ensue. To ascertain this, I seated my subjects as usual, and put into their hands one end of a chain, the other end of which was passed out of the window and buried a few inches deep in the moist earth: all other things being equal, with my utmost exertion I have never been able to produce the least effect on subjects whom I never fail to put to sleep in the ordinary way, in a few minutes. Now, if a subject holding a chain cannot be put to sleep by reason of drawing electricity from the earth, he would draw it from another body with which he might communicate as well as from the earth. If there be another person, both should impart the electrical fluid to the operator, and both should be affected. This I accordingly tried.

5. Seating two subjects side by side, and hand in hand, I then made the manipulations on one only, and both fell asleep at the same time. Two subjects may be seated several yards from each other, and connected by a chain passing from the hands of one to the hands of the other, and the effect is the same. If two can be pathetised together in this way, any number ought to, according to the strength of the operation. With this view, I formed a ring, placing myself in the centre, and made the usual manipulations on one only, when all fell asleep but one only.

In this experiment I had not subjects enough at hand, to make the ring as large as I wished, but the deficiency was made up with a chain forming a part of the ring. Now, when I excited any of the phrenological organs of one individual, the same organ was excited in *all*; for instance, when I excited combativeness and destructiveness in one head, they were all mad. If I took anything warm or cold in my hand, they all felt the same sensation in the hand individually. If I touched the chain with my hands they all felt a severe shock: if another person touched it the effect was the same I know not to what extent subjects may be affected in rings; this I think depends on the strength of the operator; but I have never found it more difficult to affect several at once than one; neither does it take longer. There are yet remaining a multitude of experiments to be hereafter tried, and as every additional experiment throws new light on the subject, it is somewhat uncertain what may yet come out of it. But thus far investigated, it appears to be electrical phenomenon, and that it is imparted to the subject during the operation; yet he does not appear to be either positively or negatively charged, but in his natural state. Perhaps he imparts the fluid to the earth as fast as he receives it. I have stood on an insulated stool, and put one to sleep, sitting on a chair on the floor, and was not charged myself, though I think I should be if all other things were favorable. It appears as if one side of a person were positive and the other negative, and when these two sides are in electrical equilibrium, no phenomenon is visible. The person is then in his own natural state, in full possession of his own sense and feeling. But when the electrical equilibrio is disturbed, he has the senses and feelings of the operator, and none of his own, at least in the first stages of the electrical sleep, as it should be called, but as appears by experimenting first, he takes the sensations of his positive side from the operator's left, unless the operator reverses the sensations, as described in experiment first, in which case he takes them from the operator's right side.

But the subject receives the most vivid sensations from the operator, when he *wills* the subject, as it is called, which only means *thinking for* the subject. Now then, there is but one way to account for this wonderful phenomenon. The nerves of sensation are acted upon or vibrated by a due proportion of positive and negative electricity, and these two principles are put into action by the will of the person thinking, and as the nerves vibrate, so will be the vibrations of these two fluids, not only in the person thinking, but at a certain distance round him, and the more intense the thought the more intense the vibration. So when a person is electrised, he takes his sensations from the undulations given to the two fluids by his electrizer, and being similar, produce similar sensations, and if these sensations originate in the electrizer's *positive* side, the subject's negative side receives them. If the positive side of the electrizer, electrized the negative side of the subject, and vice versa. That the nerves of sensation are acted upon by the two electrical fluids is evinced in the physical structure of the creature. Two sets of phrenological organs are necessary to affect sensation, the one positive and the other negative, each furnished with nerves made to vibrate by their respective electricities, and hence the harmony and regularity of the thinking apparatus of man, who, without the aid of electricity would be as insensible as a stone. The writer is of opinion, that the phenomenon of clairvoyance and sympathy is explainable on the same principle, and proposes, hereafter, to lay his views on these states before the public, founded on experiments now making.

But he would here ask the candid, which is the more wonderful, (not the more novel), that a person in the electrized state should perceive things at a distance through the medium of electricity (which every where abounds) acting on and vibrating a *thousand* nerves, or that he should see the moon in his natural state through the medium of her dim light acting on and vibrating a *single* nerve? (for the moon may be seen by one eye only.) The fact is, the faculty of seeing is so common, that it does not excite wonder, while that of clairvoyance is new, yet less wonderful, and more readily accounted for. That the science of animal electricity will completely develope the connection between matter and mind, I do not at present aver, but this much is quite certain, that the brain is the reservoir of sensation, and that the nerves are the electrical feelers, sent into all parts of the system to gather up the sensations of every part, and convey the same to the brain.

But, says one, what has electricity to do in conveying these sensations? we have the sensation of

feeling equally well, let us touch, with the hand, whatever substance we may, whether it be an electric or non-electric, or positive or negative, or in its natural state. I reply: it makes no difference whether we touch it at all or not, if we are *electrized*, and our electrizer touches it for us: we have the same sensation we should have if we touched it ourselves, and in either case the sensation is conveyed through the nerves to the brain by the electrical vibrations of the nerves. I have some subjects of very delicate constitution, of the nervous temperament, and so very sensitive when electrized, that if I take my hands off fifteen seconds, and then lay them on again, they receive a violent shock. If I hold one of their hands in mine, and with the other hand touch a third person, they receive a still *more violent shock.* I have sometimes left such subjects awhile, and on returning to them again, have been obliged to begin the manipulations three or four feet off, and approach them by degrees, until the ends of the fingers came in contact with their dress. But subjects differ greatly under the influence of animal electricity. Some are too sensitive for *any* experiments, while others are not enough so. It must not, therefore, be expected, that one subject will display all the phenomena herein described. I have been obliged to use many. But I have extended this article much beyond what I first intended. My only request is, that experienced operators would try these experiments for themselves, and if any of them fail on one subject, try another.

Yours truly,

ZENAS CAMPBELL.

Great Bend Select School, Susquehanna Co., Pa.
Feb. 4, 1843.

For the Magnet.

PATHETISM.

It is a principle of our nature to have a particular theme or study. None has ever given me more pleasure than the study of nature, as it is; and, above all, human nature. Who is it, that has never felt the inborn desire of knowing himself? And yet, how far short of the full and true conditions of our nature do we arrive, in our estimates of them. It is only by the most candid, honest, and impartial investigation of our moral character, that we are enabled to approach the truth in such conclusions. When we proceed a step further, and attempt to investigate the cause of such phenomena, ought we not to be seriously impressed with the necessity of rational and careful conclusions? Instead of hastily penetrating into the centre of an unknown country, we should keep in view some prominent landmarks, and move cautiously forward, so as to be enabled to retrace our steps, when our progress happens to be arrested by insurmountable barriers, or impenetrable chasms. Metaphysical writers have invariably lost themselves in such obstructions, by forced and abstract conclusions. The plan you have laid out before the world in the Magnet, for the investigation of the phenomena of life, must, I feel confident, conduce more to the true end, than any that has ever preceded it.

What a sublime thought, to contemplate the *mysteries of life!* Like the infinity of space, and eternity of time! Incomprehensible thought! What controls thy power, and suffers thee to roam beyond thy moral sphere? May we not safely turn to our terrestrial sphere and contemplate our own being? Nature is kind and instructive; we must reason with her works. Let us commence with facts already established; organised, intelligent matter; *sympathy*, as existing between mankind; the influences exercised by one over another, by looks, gestures, language, first sights, love, fear, &c. These, all appear to be facts of a general cause. A cause which, from the nature of its influence may be compared to sound; which may be propagated, and modulated, by all the different instruments of music, and even differently by the same species of instruments. This general cause, from its superiority over human causation, we shall never, in my humble opinion, be permitted to analyze. I conceive it to be the *link* between God and man. We may agitate this link in the great chain of life, and receive from its source knowledge, light, and life. It is, manifestly, the fountain of human happiness, as long as we invoke our sustenance from its superior source. And, by employing its inferior source, we shall inherit all the ills of flesh. We behold the planets, and contemplate their motions, from the effects they produce on the earth. But their composition is all conjectured with us. So with the motive power of nature, i. e. *Life.* The theory of *Pathetism*, or animal life, I am confident, will be as exactly systematised, by its effects alone, as has been the science of the planetary heavens. Phrenology, somnipathy, clairvoyance, and all the mysteries of Pathetism, shall be made as plain to us as the tides and changes of the seasons. We content ourselves by assigning the cause of the planetary motions to the power of the Creator. (Bishop Wilkins supposed it to be a machinery put in motion by the hands of the Creator.) From the constant companionship of the imponderable materials, I am induced to consider them one and the same substance, and that substance the motive power of nature. The different names applied to this substance, occur from its development under different circumstances. For instance: the same substances compose all the different varieties of animals. So with the vegetable kingdom. The modifications of both these kingdoms seem to depend upon the different affinities they possess for the imponderable essence, i. e. Life. It must be admitted, that we cannot further examine a substance, really superior to ourselves, than through the instrumentality of the organs upon which it acts; and that can only be an admission of its existence, and influence, on our physical organs. It is not presumable, that the Ape species contemplate *our* endowments. They come next in the chain of nature; and, like the inferior animals, they live in awe of man. What causes this dominion of man over the brute species? It is not his physical power; but his control or modifying influence of the motive power, both in his own and the inferior species. I have been enabled to keep fierce dogs at bay, by fixing my eyes on theirs. The mental power of man is ever his source of protection and preservation, and in many instances, this alone, is sufficient, without the physical motion produced by it. A determined look, in the correction of our species, is mostly as efficient as physical force. Also, in the determination of great physical efforts, we imbibe a due portion of the motive power to fulfil them. By analogous reasoning, agreeable to our conception of mechanical forces, the motive power of nature plays the same part. A light substance in motion will increase its power by increase of velocity; and hence great physical action under great mental excitement. The nervous system has a natural affinity for the motive fluid. This affinity, by excitation of the nervous system is increased, and consequently an influx of the fluid, which sooner or later is followed by an outflux of the same, until the natural equilibrium is restored. It may be questioned here, by what power the nervous system is excited to a redundant influx. We must infer, by virtue of its natural supply. A magnetic bar, by friction

over an unmagnetized bar, has not only its own power increased, but it also makes a magnet of the other. Magnetism in metallic bars, seems more permanently fixed, than electricity is, either in metal, or glass. This discrepancy does not conflict with my idea of the identity of the cause. Like grosser substances, it may play a different part by being associated with different kinds of matter. From this view of the subject, the phenomena of somnipathy are much disrobed of their mystery. The somnipathist, in the first place, voluntarily acquiesces to the operation; consequently no more of the motive power acts, than what is attracted by natural affinity, just a sufficiency to keep the vital organs in healthy action. At this stage of the operation it appears to me that the portion which the somnipathist releases, the pathetiser imbibes. The whole success of the experiment seems to depend upon the mental passiveness of the patient, and mental activity of the operator. As the patient tranquillizes his mental energy, so will the pathetiser gain the ascendancy, until he gets into his control the balance of the motive power, when he may apply it at his pleasure, upon the neutralised functions of his patient. Persons with energetic minds are not so susceptible of the somnipathetic condition, as those of a different mental character. This, however, I think, is caused by the difficulty such persons are under, in tranquillizing the mental energy, when submitting themselves to pathetetic operations. In my observations in Cephology, I have been confirmed in my opinion, which I have for some years maintained, viz: that the brain is no more the source of mental action, than a book which an individual may write, should be the source of what it might contain. From all my reasoning, which is ever founded upon the economy, simplicity, and beauties of nature, I have been led to the belief, that the brain is the receptacle of mind. From the nature of its construction, presenting a great surface for the quantity of matter, it seems well devised to receive all the impressions of our moral acts. The particular preservation that nature has awarded the brain, placed, as it were, in the sanctum sanctorum—even better guarded against accident than the heart, seems to indicate that it is the storehouse of knowledge, rather than the producing power of it. It is the grand account book wherein is recorded what we have been cognizable of: to which we can, at any time refer; with abundance of blank pages for the recording of new events. Such a view is in accordance with the doctrines of phrenology. The enlargement of the portions of the brain, from a cultivation of the propensity to which it is ascribed, in my opinion arises from the necessity of enlarging that volume of the series, to receive the impressions formed by the nervous system, and correspondent to that chapter. This enlargement of particular organs, may take place without an increase of the whole mass, by taking in its folds a portion of the next unoccupied series of pages.

Somnipathists have no recollection of what they have done under the pathetetic influence after they are restored to a natural condition, because these works were not framed by their own nervous system, which is the type of record. That is, the works of the somnipathist are not the results of external circumstances essential to the patient's individual animal economy. The operator being the legitimate instrument of such works, and, of course, receives the impression in his own record; he may, however, call the attention of the patient to the necessity of remembering things that may be stated during the pathetetic interval, which, through the animal economy, are conveyed to the cerebral memorandum by its legitimate nerve.

I shall close for the present, but should my natural mode of reasoning tend to elucidate or simplify the noblest of sciences, I shall always cheerfully contribute my iota to the sum total of human knowledge.

JNO. WISE.

Lancaster City, Pa. February 14, 1843.

P. S. To occularly demonstrate the passage of an imponderable fluid from the human body, take a common English rabbit, and rub the fur against the grain until it lies smooth; then bring the hand (after making a circular pass in a direction away from the animal) with the points of one or more fingers in close proximity without touching the smoothed fur, and the fur will bush up towards the fingers. The experiment succeeds best in clear, dry weather.

TRANSMISSION OF QUALITIES.

"One organic law, I have stated, is that the germ of the infant being must be complete in all its parts, and perfectly sound in its condition, as an indispensable requisite to vigorous development and full enjoyment of existence. If an agriculturist sow corn that is weak, and damaged, the plants that spring from it will be feeble, and liable to decay. The same law holds in the animal kingdom; and I would ask, has it hitherto been observed by man; notoriously it has not. Indeed, its existence has been either altogether unknown, or in a very high degree disregarded by human beings. The feeble, the sickly, the exhausted with age, and the incompletely developed through extreme youth, marry, and without the least compunction regarding organization which they shall transmit to their offspring, send into the world miserable beings, the very rudiments of whose existence are tainted with disease. If we trace such conduct to its source, we shall find it to originate either in animal propensity, or in ignorance, or more frequently in both. The inspiring motives are generally mere sensual appetite, avarice or ambition, operating in the absence of all just conceptions of the impending evils. The punishment of this offence is debility and pain transmitted to children, and reflected back in anxiety and sorrow in the parents. Still the great point to be kept in view is, that these miseries are not legitimate consequences of the *observance* of the organic laws, but the direct chastisement of their *infringement*. These laws are unbending, and admit of no exception; they must be fulfilled, or the penalties of disobedience will follow. On this subject profound ignorance reigns in society. From such observations as I have been able to make, I am convinced that the union of certain temperaments, and combinations of mental organs in the parents, is highly conducive to health, talent, morality in the offspring, and *vice versa;* and that these conditions may be discovered and taught with far greater certainty, facility, and advantage, than is generally imagined. It will be time enough to conclude that men are naturally incapable of obedience to the organic laws, when after their intellectual faculties and moral sentiments have been trained to observance of the Creator's institutions, as their duty, their interest, and a grand source of enjoyment, they shall be found in continual rebellion.

"Phrenology reveals the principle on which dispositions and talents are thus hereditary.—Mental qualities are determined by the size, form, and constitution of the brain. The brain is a portion of our organised system, and as such, is subject to the organic laws, by one of which, as already observed, its form, size, and qualities are transmitted by hereditary descent. This law, however faint or ob-

scure it may appear in individual cases, becomes absolutely undeniable in nations. When we place the collection of Hindoo, Carib, Esquimaux, Peruvian, and Swiss skulls, possessed by the Phrenological Society, in juxtaposition, we perceive a national form and combination of organs in each, actually obtruding itself upon our notice, and corresponding with the mental characters of the respective tribes; the cerebral developement of one tribe is seen to differ as widely from that of another, as the European mind does from that of the Carib. Here, then, each Hindoo, Esquimaux, Peruvian, and Carib, obviously inherits from his parents a certain general type of head; and so does each European; and if the general forms and proportions are thus so palpably transmitted, can we doubt that the individual varieties follow the same rule, modified slightly by causes peculiar to the parents of the individual? the differences of national character are equally conspicuous as those of national brains, and it is surprising how permanently both endure. It is observed by an author cited in the Edinburgh Review, that "the Vincentine district is, as every one knows, and has been for ages, an integral part of the Venetian dominions, professing the same religion, and governed by the same laws, as the other continental provinces of Venice: yet the English character is not more different from the French, than that of the Vincentine from the Paduan: while the contrast between the Vincentine and his other neighbor the Veronese, is hardly less remarkable."

"A striking and undeniable proof of the effect on the character and dispositions of children, produced by the form of brain transmitted to them by hereditary descent, is to be found in the progeny of marriages between Europeans, whose brains possess a favorable development of the moral and intellectual organs, and Hindoos and native Americans, whose brains are inferior. All Authors agree, and report the circumstance as singularly striking, that the children of such unions are decidedly superior in mental qualities to the native, while they are still inferior to the European parent. Captain Franklin says, that the half-breed American Indians "are upon the whole a good looking people, and, where the experiments have been made, have shewn much expertness in learning, and willingness to be taught; they have however been sadly neglected."—*First Journey*, p. 86. He adds, "It has been remarked, I do not know with what truth, that half-breeds show more personal courage than the pure breeds." Captain Basil Hall, and other writers on South America mention, that the offspring of aboriginal and Spanish parents constitute the most active, vigorous, and powerful portion of the inhabitants of these countries; and that many of them rose to high stations, during the revolutionary war. So much is this the case in Hindostan, that several writers have already pointed to the mixed race there as obviously destined to become the future sovereigns of India. These individuals inherit from the native parent a certain adaptation to the climate, and from the European parent a higher developement of brain; the two combined constituting their superiority.

Another example of the same law occurs in Persia. It is said that in that country the custom has existed for ages among the nobles, of purchasing beautiful female Georgian and Circassian captives, and forming alliances with them as wives. It is ascertained that the Circassian and Georgian form of brain stands comparatively high in the development of the moral and intellectual organs. And it is mentioned of some travellers, that the race of nobles in Persia is the most gifted in natural qualities, bodily and mental, of any class in that country; a fact diametrically opposite to that which takes place in Spain, and other European countries, where the nobles intermarry constantly with each other, and set the organic laws constantly at defiance. It is a general rule, to which I shall afterwards more fully advert, that close affinity of parents produces a deteriorating influence on the children. The degeneracy and even idiocy of some of the noble and royal families of Spain and Portugal, from marrying nieces and other near relations, is well known; and defective brains in all these cases may be observed.

If then, form, size and constitution of brain, are transmitted from parents to children, and if these determine natural mental talents and dispositions, which in their turn exercise the greatest influence over the happiness of individuals through the whole of life, it becomes extremely important to discover according to what laws this transmission takes place. At the first aspect of the question, three principles present themselves to our consideration. Either, in the *first* place, the constitution, size, and configuration of brain, which the parents themselves inherited at birth, are transmitted absolutely, so that the children, sex following sex, are exact copies, without variation or modification, of the one parent or the other; or, *secondly*, the natural and inherent qualities of the father and mother combine and are transmitted in a modified form to the offspring; or, *thirdly*, the qualities of the children are determined jointly by the constitution of the stock, and by the faculties which predominate in power and activity in the parents at the particular time when the organic existence of each child commences.

Experience shows that the first cannot be the law; for, as often mentioned, a real law of nature admits of no exceptions; and it is well established, that the minds of children are *not exact copies*, without variation or modification, of those of the parents, sex following sex. Neither can the *second* be the law; because it is equally certain that the minds of children, although sometimes, *are not always*, in talents and dispositions exact blended reproductions of the father and mother. If this law prevailed, no child would be a copy of the father, none a copy of the mother or of any collateral relation; but each would be invariably a compound of the two parents, and all the children would be exactly alike, sex alone excepted. Experience shows that this is not the law. What, then, does experience say to the *third* idea, that the mental character of each child is determined by the particular qualities of the stock, combined with those which predominate in the parent, when its existence commenced?"—*Combe.*

LIFE.

For the Magnet.

ANIMAL LIFE.

BY DAVID PORTER, M. D.

Sir—The *gist* of the theory I propose to establish, it may be presumed, is now understood. It contemplates the animal body as simply a galvanic machine, whose various internal circles of physical operations, more or less under control of mind or instinct, constitute life. That one person should, by volition, form a circle with another, and thus produce various sympathetic effects; and that an invalid person in whom the opposite galvanic powers are not well balanced, should be best adapted to the purpose; and that, in such a one, by throwing into the circle his functional electricity, the operator might suspend the mental functions, produce sleep, &c., although never

yet witnessed by me, would seem to violate no probability whatever. The torpedo possesses not only an analogous power of operation, but by a special apparatus, is enabled to accumulate it for purposes of defence, as well as offence. There is, then, to say the least, no inherent improbability in such, and many other results of what you call pathe ism, sufficient to warrant any believer in a galvanic theory of life, in rejecting the testimony of such men, as are now ranged among the converts to animal magnetism. Among them we observe the name of the learned and sagacious Caldwell of Louisville, Ky. Deep, discriminating, cautious, and wi hal, ripe i: years, the adopted faith of such a man is not to be slighted. I much regret that I have not been able to lay hands on his "Facts in Mesmerism."

In my last I commenced a notice of functions of the human body, designed at once to indicate their resolvability into galvanic laws, and to show that by those laws the very complex notion of life is explained, without the aid of any additional principle or property whatever.

We will next apply our galvanic theory to the sympathies of the animal body. Under the term sympathy we have certain reciprocal operations, supposed to be susceptible of nothing better than to be mystified under the name of vital property. To those who know anything of galvanic laws, I need not say that the power of a galvanic machine depends on its plates. Few need be told, either, that if, instead of one, any greater number of wires is attached to either end of a pile or trough, in proportion as power is displayed in one, it is more or less arrested in others, and vice versa. Here we have a clue to the explanation of *inverse* sympathies; of which kind are all immediate sympathies of the nerves. Direct sympathies belong more immediately to the blood-vessels. It is known to all observers, that during an unusual excitement of any part, blood accumulates in it. *Ubi iritatio, ibi fluxus*, was early recognised as a law of animal life. But it is a late discovery, that while the blood increases in a part by excitement, its circulation *through* it is actually diminished. Such, however, is the fact, and a very plain explanation is found in the consideration, that during the unexcited state, blood actually circulates through the capillary arteries and veins by a *vis a tergo* But as the fibres of these vessels are excited to contract, the blood thus arrested in its circulation, is forced laterally into the tissues, and increases excitement. The contraction of vessels for the same reason, also forces more blood, not only into congenerous, but also into anastomosing vessels. Thus are produced direct sympathies, as shown in the spreading of continuous excitement, as well as in the direct association of distant organs. Direct sympathies, therefore, depend more immediately on the arrangement and distribution of the arteries, while inverse sympathies depend directly on the mutual connections of the nervous system.

With regard to digestion, I will only say at present, that my theory makes the solution of food in the stomach, as well as the fluid state of lymph in the blood, to depend on a charging of their globules respectively Globules having similar electric charges must necessarily repel each other. A small portion of food remaining in the stomach and becoming highly charged, constitutes the gastric juice, which, by imparting a portion of its electricity to other animal or vegetable matters, may dissolve them.

All this will, perhaps, be regarded as what *may* take place, rather than as what actually does take place. I ask no more at present. Yet, regarding the question of life itself, the reader will please to recollect, that I occupy vantage ground. The negative of a question, I need scarcely say, must be presumed until the positive is proved. It lies with those who introduce a principle, first, to show the necessity for it. I have attempted to prove that no such necessity exists, by showing, that those phenomena which have been supposed more especially to indicate the principle, are explicable without it. In the question whether there is such a principle as *life*, with its appropriate properties, the *onus probandi*, certainly rests with those who maintain it. No other direct proof of my explanations is strictly necessary, than than they account for all the facts. It is a plain maxim in philosophy, that effects are evidences of the presence of appropriate causes, nor is it ever proper to infer the existence of unknown causes when the presence of those which are known will answer the purpose. If the phenomena of life may be explained by well known galvanic laws, and an arrangement in all respects suitable is presented, may we not infer the intelligible cause?

The intelligent reader will perceive, that I profess to add nothing to the laws of galvanism as taught in the schools, but merely to show their existence in the animal functions. It will be presumed that he is sufficiently acquainted with those laws to judge of their application, and perceive their sufficiency to account for the phenomena of life. Thus far, by bringing them into juxtaposition with the laws of life, I have endeavoured merely to show their agreement in principle. and to impress the probability of their identity. As we descend to particulars, some knowledge of anatomical structure, and particularly of the nervous system, will be indispensable.

The brain, together with the spinal marrow, and ganglia, being respectively composed of cortical and medullary matters with interposed fluids, have, so far as investigations have gone, all the requisites for galvanic power. Considered as a pile, however, they differ in this, that, instead of a succession of equal plates, they present, after the first, a succession of divided and subdivided corresponding organs of galvanic power. Thus, supposing the brain and spinal marrow to correspond to the first plate of a series, the olfactory ganglia and the ganglia of Gasser, with a double row of about thirty pairs attached to the posterior fasciculi of the spinal nerves, will correspond to the second. To the third order will belong the opthalmic, the auricular, and the maxillary ganglia, together with the opposite chains of sympathetic nerves, which, commencing with the spheno-palatine ganglia, descend on each side of the spine. The fourth order consists of the cardiac, cœliac and coccygeal ganglia, together with those sometimes found in the renal and hypogastric plexuses.

These ganglia are all supplied with nerves, which being conductors, serve as communicating wires for the living battery. Looking from the brain, every order, except the last, sends some nerves to the next order in succession, and others to the various organs of motion, sensation, &c. The former I have taken the liberty to name ganglionic nerves, the latter functional. The nerves from the brain, and through the ganglia towards the various organs, I will attempt to show, are all negative. Towards the brain, and from it through the eighth pair, they are positive. The eighth pair, and particularly the par vagum, are thus made to antagonise with all the other nerves.

As the whole system is capable of but a certain amount of power, it is obvious, that increase of function in any portion of nerves of either the positive or negative poles of the system, must proportionably suspend it in others of the same respectively. The same is true of the nerves of each ganglion. The operation of each nerve and fibre respectively tends

to suspend that of the others. Again, as each order of ganglia from the brain out adds power, it is obvious that, cæteris paribus, the functional nerves of a more distant ganglion may suspend those of the third, and the latter those of the, second, &c. Here, we hope to show, will be found a most satisfactory explanation of the inverse sympathies of animal life. But of this I will treat in my next. At present I only indicate principles.

Principles, it will be conceded, are the proper landmarks of all scientific research. By the principles of a science, I mean those elementary propositions into which it may be ultimately resolved. In other words, principles state the whole science in the fewest possible words, and present, as it comes immediately from the hand of God. The principles of natural philosophy, accordingly, comprise his immediate physical providence. The laws of Nature are his mediate or general providences. Principles of natural science may be said to designate the machinery of Nature, with their endowments. The laws of nature are their modes of operation, and facts are the results. Principles are universal, and of course have no extremes, nor do they qualify or limit each other. Hence, moral, as well as physical laws, although they tend to perfection or full accomplishment, are always so limited by each other, that they rarely, if ever, attain it in fact. Not a leaf, nor, perhaps, a crystal, ever attains to that mathematical exactness of form, which its uncontrolled formative laws would produce.

Now, if I am understood, I hope I may repeat the assertion, that the great objects of scientific research are *principles*. The question at once arises—how are these to be attained? I answer, by analysing facts, and tracing the laws of nature to their sources. This is what we understand by induction. It consists, not in conforming facts to theories; but in conforming theories to facts. For twenty centuries facts were forced to suit theories; but this great error finally gave way to the inductive method, and we are now rid of it. But the human mind, always disposed to extremes, in discarding a mere speculative theory, seems, at present, to have quarrelled with all theory. Another Bacon may be necessary to teach philosophers, and particularly medical philosophers, that mere facts are not the ultimate objects of philosophical inquiry. The glory of the former Bacon's great plan, "The Instauration of the Sciences," contemplated the "establishment of the universal principles of natural knowledge, in a regular and complete system."

Rosstraver, Pa. January 20, 1843.

For the Magnet.

HUMAN LIFE.

Dear Sir;—I have lately become a subscriber, and a reader of the Magnet. I have been considerably gratified in discovering the improvements now advancing in what you call pathetism; and have been instructed in many facts of very recent origin. For more than forty years I have had some knowledge of this subject, and have given full credence to the astonishing impressibility of one person by another, under circumstances favorable to the attempt. Indeed, on a former occasion I had asserted in prints, the following opinions; to wit:—"the facts already established in the history of magnetism demonstrate the power of mind on mind, and of mind over organism."

Yet, during this time, I have been fully convinced, that the subject has been involved in impenetrable darkness, that nothing has been known of it except the collection of a few empyreal facts; and I am now aware that it can never advance so as to claim a standing amongst any of the sciences, until some other thesis is assumed as a foundation for progressive improvement. Many and incongruous have been the hypotheses of physiologists with regard to the primordiate movements of animal structures, but they do not endure the fire of investigation. It seems to be the conclusion of the many in modern times, that Life is "the conjoined operation of many actions."—(Bortach, et aliis.) Broussais is quite candid in saying it is an "unknown power." Dr. Wilson Phillip thought he had discovered an identity between the galvanic and nervous fluids, and thereby imputed the phenomena of life to some inexplicable influence of the galvanic aura. This, now, seems to be considered the prime mover of organic life, and from hence appears to arise the style of your periodical, the *Magnet*. So it is common to hear of *Animal Magnetism*;—yet other imponderable gases are brought in as auxiliaries, so we hear of electro galvanism, et cet. Life has sometimes been defined "to be the assemblage of the functions, and the general result of their exercise."

Most of these hypotheses rest on the assumption that *life* is the effect of organization, yet modified by some of the imponderable auras. The real subject of enquiry is not solved by this; for it must first be answered, what efficient agency presided over the formation of the organism. What agency moved the primordial particles of the *nascent ens*, and ushered it into form?

There appears to be certain distinct, elementary, and imponderable essences in nature, of which something is known; such as caloric, light, electricity, galvanism, and magnetism. But there is another scarcely recognized by philosophers, except obscurely by some of the ancients, to wit—*vitality*, or the principle of life, although it has been much spoken of.—It has received many appellations by physiologists as a sequence, whilst it has scarcely been recognized as a distinct entity, or *esse*, diffused through water, earth and air, much like the other imponderable auras. This principle is discoverable by its effects much like the other auras, yet, indeed, the phenomena of vitality are more imposing and obtrusive through all creation than any of these. The phenomena of life are discoverable through all animated nature. Like other auras, it seems to have predilections to particular forms of matter, as albumen, fibrium, gelatine, et cet.

When the creator spoke this world into form, more was manifested of life than most of the other essences, yet he who said "let there be light, and light was," also "breathed into man the breath of life, [*lives*] and he became a living soul." (See Gen. 1st to 3d chap.) I cannot here pursue the history, or the arguments in favor of a vital principle being diffused throughout all the earthly creation of God, when his spirit "moved upon the face of the waters." Yet I am not knowing to any writer of modern date, who has vindicated the principle, until advanced by myself in my *Institutes of Medicine*, published in 1839. But I now discover in the Magnet for January, 1843, an intimation by Dr. R. Nelson of your city, as you say, that he had marshaled "life" with five other of the imponderable elements, p 175. It is not intimated whether Dr. Nelson originated the thesis, or whether he borrowed it. It need only be remembered, that there are many copies of the above work in the city of N. Y. even if not much read.

But, my dear sir, aside from all this, give me liberty humbly to suggest, that no material advancement can ever be made in the process of what you call *pathetism*, until the thesis of an independent vital principle, or vital aura, is fully acknowledged as

the basis of all the investigations. Simply considered, an animating aura should be assumed as the basis of all improvements in this intricate subject.—I cannot go into much argument here, but would respectfully refer any reader of this to the above work, which will be found in the 4th sect. of vol. 1st p. 42, *on vitality in connection with the susceptible tissues.* The subject is continued to page 98. This topic is there reviewed in the briefest manner, and much might be addded.

It may have been noticed, that many, if not all, of the imponderable elements, occasionally act as auxiliaries to the vital aura in producing the phenomena of life, vascular motion, organization, and intellect. The subject embodies the entire range of all animal and vegetable, as well as human physiology. This principle is united in different capacities, and force, in all the varied tissues of the system. Its force, however, is most eminently displayed in the different nervous plexuses, and in each tissue modified phenomena are discoverable in health, and also in modified states of excitation. The extensive plurality of nervous susceptibilities give occasion to numerous and diversified phenomena.

All animated beings are governed by laws peculiar to themselves; so we see all vegetable and animal organization to be directed by their own peculiar and inherent powers. The presiding principle adheres with considerable pertinacity to the animal tissues. Still these forces do suffer modifications from extraneous agencies, and by these disease may be produced: and how far the manipulations of pathetisers with other adjuvants, may impress and modify the functions of organs, remains yet to be learned, and whether as tending to good or evil.

These cursory remarks are submitted to your direction; whilst I am, dear sir,

Your humble servant,

JOS. A. GALLUP.

Woodstock, Vt., Feb. 6, 1843.

HEALTH AND LONGEVITY.

I am desirous of calling the attention of the reader, and particularly of the invalid, to the best methods of preventing disease, as well as of recovering health when lost or impaired; and I wish to impress upon their minds that this consists, principally, in a *well regulated diet* and regimen. It is very natural and very customary, for us to indulge our propensities and appetites till some derangement of our digestive functions is the consequence; and then instead of avoiding the exciting cause of the evil, we resort to medicine for a remedy, which at best, is a poor substitute. I have heard of a person subject to dyspepsia, who was so fond of indulging his appetite, that he *would have* a good dinner; and after eating it, he was in the habit of running his finger down his throat and vomiting it up. This excess in a greater or less degree, is indulged in by thousands; and they would rather suffer the penalty of gluttony, than to practice abstinence or temperance. They will eat and drink whatever their appetites crave, because diseased; then torture their stomachs with drugs or nostrums till their lives are rendered wretched indeed.

I wish to see a reform in this respect as well as in the habitual use of ardents; as the one is almost as destructive to health as the other.—Says Dr. Mott in one of his lectures, "All who have abused their stomachs will assuredly be brought to an account for it sooner or later. I am not sure," says he, "but more disease and suffering result from intemperance in eating, than intemperance in drinking. Hence there is as much need of a *temperance eating*, as a *temperance drinking* society. From whatever cause the digestive organs become deranged, the system will exhibit disease in some form or another," although it may be years before the disease developes or shows itself.

"Happy would it often be," says a writer, "for suffering man, could he see beforehand the punishment which his repeated departure from the laws of physiology or nature is sure to bring on him. But as in the great majority of instances, the breach of the law is limited in extent and becomes serious by the frequency of its repetition, rather than by a single act; so is the punishment gradual in its infliction, and slow in manifesting its accumulated effect; and this very gradation, and the distance of time at which the full effect is produced, are the reasons why man in his ignorance so often fails to trace the connexion between his conduct in life and his broken health.

To the intemperate in eating and drinking the day of reckoning is merely delayed, and there is habitually present a state of repletion which clogs the bodily functions, and may lead to some sudden death by some acute disease when the individual is apparently in the highest health."

How many instances might be mentioned to prove this fact. A person who resides the next door to me is now very low from the same causes. He had been a butcher by trade; had lived very high, and taken very little exercise, which caused great plethora. He was suddenly attacked with a severe disease, and for some days his life despaired of; I anticipated a similar result from his mode of living. Another acquaintance of mine was lately brought to the same condition by indulgence in eating and drinking. One day he commenced working in his garden, and on stooping, the blood rushed to the head, occasioning fatal apoplexy. How frequently do we hear of similar cases from similar causes. A person asked my advice, some time ago, in relation to symptoms arising from improper regimen. I prescribed suitable diet, &c. Afterwards he informed me that he began to follow my directions: but his wife dissuaded him from it. She prepared so many good things for him to eat that he could not abstain from them. He continued to violate the laws of nature till he was seized with a fit of palsy or apoplexy, which renders his recovery doubtful. Volumes might be filled with similar cases.

Says a late writer, "Is it not better by a rational exercise of judgement, to preserve health when we have it, than first to lose it, then pay the penalty in suffering and danger, as an indispensable preliminary to its subsequent restoration?" It is known, that as soon as a person applies to a judicious physician for advice, he is put under a proper course of regimen to restore him to health. Now it must be evident, that the same course which is calculated to restore health is likewise calculated to prevent disease. To accomplish an object so desirable and important as to prevent disease and preserve health, I have laid down rules in the following pages, founded upon the laws of physiology, and which if strictly adhered to, will be the means, not only of the recovery but likewise the preservation of health, and often without the use of medicine.

"It is not easily to be credited," says Cheyne, "what wonderful effects, even in the most desperate and universally condemned-to-death diseases, I have seen produced by an exclusively milk and grain diet; and even these, the thinnest and least in quantity, the person could be tolerably easy under from the pain of hunger, and continued for one, two or more years. Epilepsy totally cured;—universal lepers made clean; stone and gravel laid quiet; cancers

healed or palliated; ulcerated lungs made sound; and schirrous livers made pervious; and all accomplished by a total, obstinate, and continued milk and grain or coarse flour diet. I firmly believe, and am as much convinced as I am of any natural effect, that water drinking only with a diet of milk, grain, and fruit duly continued and prudently managed, with proper evacuations, air, and exercise, are the most infallible antidotes for all obstinate diseases of body and mind. This regimen I have for the last twenty years pursued."—*Beach's Family Physician.*

THE MAGNET.

NEW-YORK, APRIL, 1843.

ECSTACY.

This term has been used to signify a fixed state, or trance, in which the mind seems to be arrested and fixed: a state in which the functions of the senses are suspended by the contemplation of some extraordinary or supernatural object. A case of this kind was described in our last. It is a state well known among certain classes of Christians, as we have seen it induced many times by religious excitement; and a case of the kind was said to have occurred in Philadelphia some eighteen or twenty years ago, which lasted nine days, during which time the patient was reported to have neither ate nor drank any thing, and her face was said to have shone with a peculiar and unnatural brightness.

We were once told of a family, including the father, mother, and three or four daughters, who fell into this state frequently, during the seasons of domestic worship. At these times they would, together, sink upon the floor, and their limbs become as rigid as if frozen. Such cases may often be seen at the camp meetings held by the Cumberland Presbyterians, and the Methodists. We have known persons of the first respectability, and of both sexes, and different ages, to fall into this state, and they have described it to us as one of ineffable delight and tranquillity. It comes on by a gradual loss of muscular strength, and sometimes the muscles remain perfectly relaxed; but at other times they acquire a state of rigidity really astonishing. We have seen persons in this state so much affected, that by moving the hand, for instance, you would move the whole body with it, as if the entire system were frozen or petrified.

We do not know whether any cases of ecstacy are on record, of persons not religious; but it is certain, that from time immemorial, persons in different religious sects have been known to fall into this state. The Roman Catholics have for ages manifested great enthusiasm in detailing accounts of what they call miraculous ecstacy; and recently they have published a small pamphlet, purporting to give an account of two Austrian women, whom they denominate "the Virgins of the Tyrol"; and it is plain enough, that these women are in a fair way to become *saints* of the first magnitude in the Papal calendar. If we may believe one-half of the details given of these cases, they are, unquestionably, nothing more nor less than what have been long known as natural somnambulists.

We gave full accounts, in our second and third numbers, of a large number of "sleep-wakers," so called, that is, persons of a peculiar temperament, who have been known to fall into a singular kind of sleep, in which they had "vision without the eye," and performed various feats without the use of the ordinary organs of sense. And yet, the author of the pamphlet now under notice, labors hard to make it appear, that these cases have nothing to do with what has been known under the name of mesmerism. But the Earl of Shrewsbury is *deceived* by supposing that no case of what is called mesmerism, could occur in any form, without the agency of an operator to produce it. He might just as well suppose that no physical or mental change could take place in any system without the agency of a second person, by whose influence it must be brought about. We know to the contrary. Cases of somnambulism, partial and complete, have long been known; and that these "virgins of the Tyrol" are persons of what we should call the *sympathetic* temperament, is fully proved by the account given of them in this book. And every person, the world over, who is familiar with this subject, will see at once the striking *resemblance* between the features of these cases, and what we know to be peculiar to the spontaneous sympathetic sleep. We say, sleep; and yet, we do not exactly mean what is understood by the term *sleep*. It is a state which cannot be well explained. An intelligent lady of this city informs us, that she is conscious of being in *two* different states, frequently, though, indeed, not asleep. These states are so unlike each other, that she finds it impossible to describe the one which differs from the ordinary, conscious, waking condition. Natural somnambulism arises from the highest degree of what we should call the *sympathetic* temperament; and from its highest developments there are various degrees, (up or down, as the case may be), to the temperament which is not affected in this manner at all. And a knowledge of this subject, in all its different aspects, will leave no room for the shadow of a doubt, but that the "virgins of the Tyrol" are of the class now under notice; and that their *ecstacies* so much wondered at, and extolled by the papists, throughout the world, just now, are the results of natural causes, just as much so as any ordinary case of catalepsy or hysteria. And, to make this matter appear to those who may not have access to the book above referred to, we will give a few extracts which will, at once, show the features of *resemblance* between their cases, and what is everywhere known of natural sleepwakers, or persons disposed to this state.

1. *Health and Temperament.* It is well known that disease predisposes persons of a certain temperament, to this state; and, accordingly, it is said of Maria Morl, in her "early years had various attacks of illness;" and it would seem, that from 1832 she has been mostly confined to her bed with indisposition. Her temperament, we learn from expressions made of her like the following:—"Her hazel eye," &c. "and her look is so open." Similar expressions are used of the other, Maria Domenica, who enjoyed good health till 1828, since which time she has been indisposed, and for more than eight years *confined to her bed.* Here, then, we see the foundation of all the wonders of their ecstacy.

2. We see other resemblances in *the manner of the*

commencement of these ecstacies. For instance, of Maria Morl it is said,—

"When, in 1832, she had attained her twentieth year, she evinced the first symptoms of ecstacy, falling into that state *each time she received the holy communion.*"

And of Domenica it is also said,—

"In the year 1833, she was first observed to fall into ecstacy *after receiving the holy communion*, but without rising from her bed."

We have seen scores of persons, after kneeling in prayer, and others, when kneeling at the altar in Methodist churches for receiving the sacrament, fall into this state, and become apparently unconscious, *precisely* like what is said of these two nuns.

3. *Perceptions, without the use of the organs of sight or hearing.* Instances are given, where it is said these nuns had perceptions of the approach of the mass; and one of them, it is said, as it was carried through the town, "turned to it, as the needle turns to the pole." And this, the pious Catholic is taught to believe, is MIRACULOUS, and demonstrative of the truth of Popery! Now, admitting the account to be true, it proves nothing for or against religion. Examine the second and third numbers of the Magnet, and you will find cases enough of the same power of perception detailed, and which came on, spontaneously, like these now so much wondered at by the Papists, far and near.

4. *State of unconsciousness.* The authors of this book think it quite miraculous, that these "virgins," during their ecstacy, should have their "eyes wide open," without seeing; so that when "a candle is held near the eye," or when a fly lights upon the eye-ball, they do not wink at all!—a phenomenon that every pathetiser has witnessed since the days of Mesmer, and one which we will produce for his Holiness any time, whenever he will do us the honor of a call. Persons in a state of somnipathy, such as may be produced upon a large number of persons, every where to be found, become wholly insensible to pain; and we have published cases where the most difficult surgical operations have been performed, without the patient's knowing any thing about it at the time.

5. *Surprising positions of the body.* It is mentioned as another miraculous effort of the Divine power, in the case of these virgins, that their bodies frequently assume very singular positions; as, for instance, one says she

"Had seen Maria More raised up in the air so far, at least, as only to touch the bed with the very extremities of the feet."

The same thing is done by natural somnambulists; and we have made some of our patients, while in a state of somnipathy, assume and maintain the body in a position, which could not be borne in the waking state. In a preceding number we published a letter from a natural sleep-waker, who described feats done by himself in this state, which he was utterly unable to do when wide awake.

6. *Effects of contact with others.* Every pathetist must have noticed the curious effects produced by merely touching persons of this peculiar sensibility, whether they be touched by the operator or any other person. By a mere touch we have, times without number, given to the body of the patient, when awake, any desirable tendency or motion, or even deprived it of the power of locomotion entirely. So it is said of these virgins:—

"The chaplain desired me to touch her hand, when the slightest pressure of my finger upon hers, made her own fall several inches, and put her into a swinging motion from side to side. This movement was considerably increased by the same person blowing at her gently with his breath, so exceedingly aærial and unsubstantial is her frame."

The above is a specimen of the manner of experimenting, practised by the Papist priests on the "virgins of the Tyrol."

Again: we know how instinctively some somnipathists shrink from the touch of persons. Just so these virgins:

"During this period her right arm hung down partly beyond the bed; I touched her hand, when it shrunk from the touch like the leaf of a sensitive plant, and then, like it, remained in the new position which it had assumed."

7. *Manner of inducing and removing the ecstacy.* We have had numerous patients, who would fall, instantly, into this state, by merely touching them, and some who would sink into it by merely looking at them; others we have had, who fell into it when seated in the same chair where they had frequently been put to sleep before. Precisely so these "Virgins of the Tyrol:"—

"When her confessor [in another place the priests are called "*the keepers of her conscience,*"] sees occasion to require it, she falls *at his bidding* into this state."

And thus she is *brought out* of it:

"Yet, with all this, it requires no effort, no noise, nor hardly any ostensible agency, to break the spell; a gentle touch or whisper from her confessor, or any ecclesiastic with whom she is acquainted, is sufficient to dissolve the charm, completely and at once."

We could trace the *identity* between these cases and the ordinary cases of somnambulism still further, were it necessary. But the above is sufficient to put this fact beyond all doubt, in every candid, unprejudiced mind. But the devoted Papist will remind us, that we have not noticed two of the most remarkable miracles described in these cases; and he will ask how we account for the "Stigmata"? For instance, there are plates giving the appearance of these virgins, and one of them is represented as bleeding in the forehead and temples, the outside and inside of the hands, and in the insteps of the feet, and also in the side, in resemblance of the places in the body of our Lord Jesus Christ, where he was wounded when crucified! And we are told, that the blood is seen to ooze from these wounds *every Friday*, and while the patient lies upon her back, the blood from the insteps actually runs *upwards towards her toes*, instead of following the laws of gravitation downward!!! Nor is this the most of this story, for it is added, that one of these virgins "*has neither eat, nor drank, nor slept, for more than eight years!!!*" And to prove this account true, the book refers to another case, where a Papist *is said* to have lived "*for twenty years in perfect health and strength,*" without tasting food at all!!!

All we have to say to these representations is, to affirm their falsehood. And lies so monstrous, puts the shade of doubt upon the other details in this book, though we can readily admit the truth of many of them, and this, too, without supposing there was any thing of the mira-

culous. For instance: if the blood is seen to appear on the hands, head, feet, and side, as is represented, it may be accounted for in two ways:—

1. It may have been brought there by punctures inflicted on the body by the persons themselves.

2. It may have been produced there by what we know to be the laws of sympathy, in the effects the mind sometimes has over the nervous system. A case in point was given in the papers, some time since. A child was born in Europe, with the words "*Napoleon Empereur*," with an appearance of the Emperor's face, plainly formed in the cornea of each eye. This should certainly have been a *miracle*, according to the assumptions in favor of the Tyrol Virgins. But it came to pass on this wise. On inquiry, it was found that the mother was in a state of extreme mental anxiety for some months before this child was born; and during most of the time of gestation, she was in the habit of gazing at a coin of Napoleon, which had these words upon it.

A state of great mental effort, long continued, by persons of a peculiar temperament, has been known to cause physical changes, remarkable enough to be supposed *miraculous* by those who know no better.

We have stated, that an attempt is made in this book to show that these cases of ecstacy are not produced or modified by the laws of mesmerism, so called; and this attempt is put forth by one who confesses himself ignorant of these laws. But the reasons for this are obvious enough: it is but a short time since the Pope issued his *bull* against what is called "animal magnetism"; and it would explode too many Popish miracles, now to admit that this agency, direct or otherwise, was at all concerned in producing a state which is looked upon with so much awe, by those who have given their "consciences" to the keeping of spiritual "directors."

WHAT IS IT?

We can appreciate the feelings of our correspondent, whose communication will be found on a preceding page, headed "Interesting Experiments," when he observed the results described by him in that article. Having made similar experiments ourself, long ago, we, like him, supposed we had arrived at a knowledge of some important *principles*, until we found our conclusions all dissipated by results of a directly *contrary* character in other different subjects.

Applying a pointed steel instrument to portions of the head, and noticing that one side was repelled, while the opposite would be attracted, first led us to the conclusion, that the different cerebral organs were balanced in opposition to each other, and hence we called them *positive* and *negative*.

It would, perhaps, be assuming too much, for us to suppose *we* have never been deceived in any of our numerous experiments; but we may state that we do not know an operator who has not been misled, more or less, in his conclusions, with regard to the laws which govern this mysterious agency. Even a learned operator in London, does not seem to have entirely escaped the snare in which this (if we may so call it) bewitching subject has involved most of its votaries; and it has happened, we believe, in one or more cases, that when persons have fancied themselves the most familiar with its laws, they have been, more than the less venturesome, duped and led astray by the interpretations they have put upon its phenomena.

We not long since, read quite a labored article from the pen of a Philadelphia physician, detailing some thirty conclusions to which he had arrived, as so many laws which governed this subtile agency. But like other experimenters, that same physician will, we doubt not, in time, be as willing to alter his opinions, as he has been, in that article, to state them. The article to which we now allude was read before the college of physicians in Philadelphia, in November last, and published in the Public Ledger for Dec. 22, 1842. With many, if not most of the Dr's. conclusions, we should not, perhaps, wholly disagree; but his article does not seem to have been prepared with that care, which he himself, would assume to be necessary when writing on difficult subjects of this kind. For instance, he says:—

"As we cannot believe in mesmeric 'rapport,' so we are not able to credit the existence of any peculiar *sympathy* between the operator and subject."

But how does this agree with another part of his article, when he says—"there is sometimes the manifestation of strong personal *sympathy* between mesmerizer and subject."

Dr. Mitchell seems evidently to have been, like many others, misled by what has been supposed to be an effect of the *passes*, when, as we know, persons of the right temperament have been put to sleep by the first trial without any passes at all. We do not mean that any one has ever been put to sleep by a mere *mental* effort, who had never been operated on before, for it is yet to be determined, as to how much the wills of the operator and the patient have to do in bringing about the results under notice. We have frequently known persons to become considerably affected on witnessing for the first time, the process of pathetising on others. This we can easily explain, on the supposition we have before advanced, that this *susceptibility*, and the *agency* by which we operate, are traceable into that state of the system which gives rise to what the physicians have denominated *sympathy*. Some we know, manifest sympathetic phenomena, who were never trained or informed about it in any way; while others manifest nothing of it and for the simple reason, that their susceptibilities are not of the right kind.

Being invited to operate before a private committee, a few weeks since the following case occurred. The chairman had requested a noted physician of this city to inspect the proceeding, and had taken with him a phial of concentrated ammonia. After the patient had been put to sleep, the chairman handed the phial to the physician, and (*supposing* she could hear,) he said to us,—"Mr. S. let me pinch your hand." But instead of pinching our hand, the Dr. held the open phial to the patient's nose for some time, during which she gave no signs of the sensation of smell at all. This experiment was repeated with the same results. We then, (unknown to the patient) took the phial, and on placing it to our own nose, the patient was quite strangled, and thrown into convulsions. Her face became quite colored, and she begged

she might not be compelled to smell that hartshorn again, as it always took away her breath!

This attempt to deceive the patient *should* have been successful, had she not been perfectly asleep; and had there been no real *sympathy* between her nervous system, and that of the operator, no one could be able to account for the manner in which she was affected.

The truth is, no two subject are affected in all respects alike; and hence it is quite easy for an operator to be misled in forming conclusions from experiments, performed on a score or less of individuals. We have found what appeared to be a correspondence, not only in the phenomena which are produced on certain classes of persons, but also a correspondence in the results produced by the same operator on different subjects. And we would suggest to our correspondent in Great Bend, Pa., that if he wishes to avoid the false conclusions to which we have alluded, that he try the effects on his subjects with an ordinary compass or electrometer. That is, let the results he produces, be determined by the magnetic needle. If the effects he describes are *really* produced by what we know to be the electric laws, then his patients would attract or repel the needle, or affect an electrometer just as certainly as that he has not been misled in his conclusions from the experiments described by him.

MAGNETISM.

INDUCTION OF MAGNETISM.

The following extracts are from that excellent work, "Davis's Manual of Magnetism," noticed in our last number.

It was for a long time supposed that the attractive force of the loadstone or any other magnet was exerted upon iron simply as iron; whereas it is now known to be the attraction of one pole of a magnet for the opposite pole of another magnet. In all cases, when a magnet is brought near to or in contact with any magnetisable bodies, as pieces of iron, iron filings, or ferruginous sand, all such bodies, whether large or small, coming thus within the influence of a magnetic pole, become magnetized; the part which is nearest acquiring a polarity opposite to that of the pole of the magnet; while the remote extremity becomes a pole of the same name.

Exp.—If several pieces of iron wire of the same length be suspended from a magnetic pole, they will not hang parallel; but the lower ends will diverge from each other, in consequence of their all receiving the same polarity by induction, while the upper ends will be retained in their places by the attraction of the magnet.

Exp.—Suspend two short pieces of iron wire by threads of equal length, fastened to one end of each piece so that the wires may hang in contact. If now the south pole of a magnet be placed below the wires, the lower ends of both will become north poles, and their upper ends south poles; and the wires will recede from each other. This divergence will increase as the magnet is brought nearer, until it reaches a certain limit, when its attraction for the lower poles will overpower their mutual repulsion and cause them to approach each other; while the repulsion of the upper ends will remain as before.

In former times artificial magnets were always made by induction from strong magnets previously prepared; the original source of the power being provided by natural magnets. When this was the case, it became important to ascertain what arrangements and what modes of applying a magnet to a bar or needle, were most efficacious in communicating or developing the magnetic virtue; and accordingly various and complicated arrangements and manipulations for this purpose, are detailed in old treatises on this science. Recently, however, other and far more powerful means have been discovered for magnetizing bars of iron or steel, as will be hereafter described; so that all those methods have been in a great measure superseded. The induction of magnetism by the means above referred to, is now only employed for magnetizing needles or small bars.

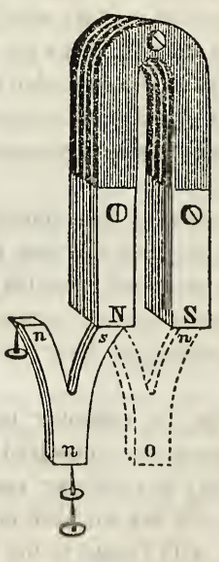
It may however be convenient to know a good process for magnetizing (or *touching*, as it is technically called) by the aid of steel magnets. One of the simplest and best will here be given. A small bar of steel may be magnetized by drawing it across the poles of a magnet in the following manner; place the middle of the bar on one of the poles and then draw one end of it over the pole a number of times; the direction of the motion from the middle to the end. Then turn the bar in the hand, and pass the other half over the other pole of the magnet in the same way. If the bar is thick, the process may be repeated with its different sides. The end which has been drawn over the south pole of the magnet will now possess north polarity, and the other extremity south polarity.

The magnet which is used to induce magnetism loses none of its own power in the process, but often receives a permanent increase by the reaction of the polarities it has induced upon its own.

Exp.—That a magnet possesses greater power while exerting its inductive action, may be shown by suspending from one pole of a bar magnet as much iron as it can hold. If now a bar of iron be applied to the other pole, the first will be found capable of sustaining a greater weight than before.

When the arrangement of the experiment is such that while one extremity of an iron bar is exposed to the influence of one pole of a magnet the other extremity may be acted upon by the other pole, there will be a sort of double induction, and the effect will be increased.

Y Armature.—This consists of a piece of soft iron in the shape of the letter Y. If one of the branches of the fork be applied to the north pole of a



horse-shoe magnet, as seen in fig. 41, the lower end of the armature, and also the other branch of the fork acquire north polarity, and will sustain small pieces of iron. If both branches of the fork be applied, one to each pole of the magnet, as shown by the

dotted lines in the cut, the polarity of the lower end immediately disappears. This is because the two poles tend to induce opposite polarities of equal intensity in the extremity of the armature, which of course neutralize each other. If the branches of the fork are applied to the *similar* poles of two magnets, their influence will conspire in inducing the same polarity in the lower end, and a greater weight will be supported by it, than when one branch is applied to a single pole.

It is not easy to magnetize a bar whose length considerably exceeds its diameter, in such a manner that its two poles may be developed along two opposite sides instead of at its extremities; for the opposite polarities tend to keep as far from each other as possible. The points of greatest intensity in a permanent magnet are not however situated precisely at its ends, but at a little distance from them.

The inductive action of a magnet is not impeded by the interposition of any unmagnetizable body whatever. Thus, if a plate of glass be placed between the magnet and a piece of iron, the iron will be as much influenced, and will be attracted as strongly, as it would be at the same distance with no glass interposed.

Flat Spiral.—Fig. 49 represents a ribbon of sheet copper, coiled into a spiral. This instrument is described here in consequence of its possessing considerable magnetizing power, though its principal uses will not be mentioned till the inductive action of electrical currents comes under consideration,

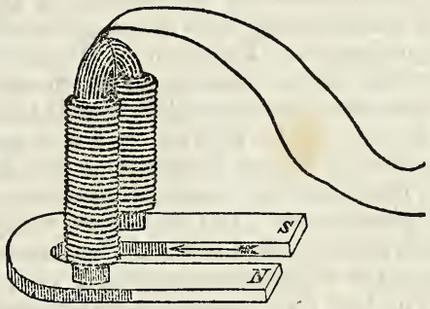
in chap. III, section 1. The copper ribbon may be an inch wide and one hundred feet long, the strips being cut from a sheet, and soldered together. Being then wound with strips of thin cotton it is coiled upon itself, like the mainspring of a watch; instead of covering it with cotton, it may be coiled with a strip either of cotton or list intervening. Two binding screw cups are soldered to the ends of the ribbon; the internal end, for convenience, is brought from the centre, underneath the spiral, to its outside, care being taken to insure insulation where it passes the coils. The whole may be firmly cemented together, if desired, by a solution of shellac in alcohol. The spiral being connected with the battery, its two faces will exhibit strong polarity; a dipping needle placed on any part of its surface or near it will always direct one of its poles towards the centre, as seen in fig. 49, where a dipping needle N S is represented on the spiral. On reversing the battery current, the other pole of the needle will turn towards the centre. If the spiral be fixed in a vertical position, a horizontal magnetic needle may be used with the same result. When brought near to one side of the coil, it will be found to direct its north pole constantly towards the centre; when on the other side, its south pole. When either the horizontal or dipping needle is placed near the outside, with its axis of motion in the same plane as the spiral, neither pole will be directed towards the centre, but the magnet will place itself at right angles to the plane of the spiral.

Exp.—The magnetizing power of the spiral may be shown by connecting it with the battery, and placing a rod of iron or steel in the central opening, or upon it in the direction of a radius, when the iron will become temporarily magnetic, and the steel permanently so. If the bar, when laid upon the coil, extends across the central opening, both ends will become similar poles, and the part over the centre, a pole of the opposite denomination.

If the spiral be of considerable diameter, it will exert a feeble magnetizing power on its outside, and a short rod of soft iron placed near it will become able to sustain a few iron filings; its polarity will be in the reverse direction to that which it would acquire were it placed within. The influence of the earth in inducing magnetism in the iron must not be overlooked; it may be allowed for by observing whether the transmission of the current through the coil causes more or fewer filings to be sustained by the bar, or avoided by placing the spiral in a vertical position with its axis east and west, and the rod horizontally east and west.

Communication of Magnetism to Steel by the Electro-Magnet.—The great power possessed by the electro-magnet, renders it peculiarly fitted for inducing magnetism in steel; hence it is very convenient for charging permanent magnets. A short steel bar if applied like an armature to the poles of a U shaped electro-magnet, will become strongly magnetic, the end which was in contact with the north pole acquiring, of course, south polarity. A longer bar may be charged, by employing the same process that has been described in § 108, for *touching* by steel magnets.

Bars of the U form are most readily magnetized by drawing them from the bend to the extremities across the poles of the U electro-magnet, in such a way that both halves of the bar may pass at the same time over the poles to which they are applied. This should be repeated several times, recollecting always to draw the bar in the same direction. Then if it has a considerable thickness, turn it in the hand and repeat the process with its opposite surface,



keeping each half applied to the same pole as before. Of course, the result will be the same, if the steel bar is kept stationary and the poles of the electro-magnet passed over it in the proper direction of the arrow in fig 56.

In order to remove the magnetism of a steel magnet of the U form, it is only necessary to reverse the process just described; that is, placing one pole of the electro-magnet on each of its poles, to draw the electro magnet over it, towards its bend, in the direction of the arrow in fig. 56. In this way, a steel magnet may often be so completely discharged as to be unable to lift more than a few iron filings. A bar magnet may also be deprived of its magnetism in a great degree by passing the north pole of an electro-magnet over it, from its south pole to its middle, and then lift it off perpendicularly; if, then, the south pole be passed in the same manner, over the other extremity of the steel bar, it will be found to have lost the greater part of its polarity. If necessary, this process may be repeated several times.

A still more effectual mode is to make use of two electro-magnets: place the north pole of one on one end of the bar, and the south pole of the other on its other extremity, and draw the poles along the bar till they meet at its middle; then lift them off. If the steel bar whose polarity is to be removed is of small size, steel magnets may be substituted for the electro-magnets in the above processes, though with less effect.

MOTIONS PRODUCED BY THE MUTUAL ACTION OF MAGNETS AND CONDUCTORS.

When a wire conveying a current of electricity is brought near to a magnetic pole, the pole tends to revolve around it, as has been explained in § 79. If the current acts equally on both poles, no rotation occurs, because they tend to move in opposite directions; and the magnet rests across the wire in a position of equilibrium between the two forces. But if the action of the current is limited to one pole (which was first effected by Prof. Faraday), a continued revolution is produced. If the magnet has liberty of motion, it will revolve around the wire; if the wire only is free to move, it will rotate round the pole. When both the wire and the magnet are at liberty to move, they will revolve in the same direction round a common centre of motion. A number of instruments have been contrived for exhibiting these movements.

MAGNETISM.

BY RICHARD ADAMS LOCKE.

Richard Adams Locke, Esq., well known among our scientific men for his high ability and distinguished attainments, delivered a very interesting Lecture, at the Society Library on Thursday evening, upon the influence of Terrestrial Magnetism on the past, present, and future condition of this world—embracing the thesis of the alternate creation and dissolution of all natural bodies. He would first call attention to the influence of Magnetism on the natural forms of creation, and then speak of its influence on their reproduction. The view of Magnetism which was confined to its influence on the needle, was by far too narrow—for more substances than one are affected by it. When it exists in a free state, as in iron, possessing regular organization and polarity, it exhibits only a narrow range of comparatively well defined phenomena. But all bodies really possess organized magnetism, and their phenomena vary according to the different characters of their organization. The best way to reach the whole subject is to consider what are the natural forces of the earth. Of one fact we are certain: that *all motion must result from two forces*; we know no motion that is not the result of two forces: All motion is either backward or forward, upward or downward—or between the two, which is the same thing. If there be a force to repel, there must also be a force to attract, else there will be motion forever in one direction, and no motion can exist without a cause. The truth has been known for ages, but was first reduced to a grand postulate by Sir Isaac Newton. It is the third law of his Principia that 'to every action (or motion) there is always an opposite equal re-action or contrary motion; or the natural action of two forces upon each other, or upon a passive body situated equi-distantly between them, is always equal. Thus we shall have an eternity of motion, unless there should be some miracle to stop it. Suppose creation to go on to a certain period and then to be destroyed—and then to be renewed again; through a perpetual series of alternations, the ancient symbol that eternity was a circle, without beginning or end, would be strictly philosophical according to Newton's Principia.

All the forms and modifications of matter are the results of motion. How should bodies be as they are—as we see them in the forms of plants, &c., if there had not been a motion of the particles to bring them where they are? Contemplate the most simple action of two forces upon matter in a free state, say the action upon a quantity of hydrogen of the two wires of the battery? One force repels, the other attracts; one drives from—the other pulls to. Is not the necessary effect the production of a circle? Look at the natural forms of the universe; you are all aware that they are circular, and I might ask any one of you to find a third motion to produce this form. Evidently—even to mathematical demonstration—it must be a circle and nothing else. But provided one of the forces prevail but a little over the other—let the attraction prevail but a little over the repulsion, and what do we then have? The sides of the circle would then accumulate, draw to themselves the other matter in space and become a sphere. The narrow ribin would become wider, would contract at the edges, and thus we should have a hollow sphere open at both ends, until it was completed. A little attention to the celestial bodies, is sufficient to show that this has been the process of the Divine hand in creation. Some years ago, a European astronomer announced that he had seen a comet with two other comets within it—a conglomeration of three comets; this was considered very marvellous, and I am not aware that any explanation has yet been given in the journals of science. But if this theory be true, the explanation is obvious. If we take this phenomenon in connexion with the well known facts, that there are times when stars of the third magnitude are distinctly seen through the nucleus of the comet, and that there are other times when even a star of the first magnitude cannot be seen, we may see how these facts are to be accounted for. If we suppose the *pole end* of the comet to be presented to the eye, and suppose the comet also to be an unfinished sphere open at the pole, as I have described—the ribin expanded but not completed—it will not be surprising that we should see a star through it. But suppose the comet to be presented equatorially to the eye—having both its sides between the eye and the star; of course we shall not see it. Now, suppose it to be midway between these two positions, what shall we see? Evidently the two circles will intersect each other, and thus will present the appearance of two comets within the other.

With regard to the nebulous origin of worlds, in reference to our own, I will only say that it seems to rest on the deductions of reason and observation. Look at the Nebulæ which the strongest telescopes cannot magnify. We may perceive in space stars kindling beyond stars, which the boldest wing of imagination may not reach; but can know nothing of these nebulæ beyond what we see with the naked eye. Let me remind you then of the fact, that there is no square or cornered body existing in free space—or any other than a spherical form. And this form the action of two forces, necessarily produces. It is extraordinary that we never meet in nature a square organised body. It may be thought that a few cubic crystals form an exception, and exceptions may also be taken in the cases of certain plants, as hemp, catnip, &c. But these are really no exceptions. For if we look at the corner of these plants we shall find a small circular tube to keep up the universal harmony of nature. So that if these are not circular outside they are in. Thus in the connection between shell fish and animals—in the first they are outside, and in the other inside; plants draw their nourish-

ment from the earth without; animals carry their garden in their own breasts: so that "we are only plants turned outside in, and vegetables are only animals turned inside out." There is no deviation from the general rule that nature produces all her forms reactively. Perhaps I may give a better explanation of this by supposing my two hands to be two magnets: in one the fingers are positive, and the wrist (the other extremity) negative; in the other the wrist is positive and the fingers negative.—Now the fingers of the two if brought near, will attract each other, because their magnetisms are of different denominations; but what is the characteristic of attraction? It is always to contract, and this may be seen by dipping two magnets into steel filings, when the filings, if attracted, will be brought to an angle, but if repelled they will be spread abroad like the leaves of trees in spring. I might refer to the gaseous origin of matter to illustrate this doctrine of contraction and expansion, but it is not necessary.—Suffice it to say that there are no substances with which we are acquainted that may not be reduced to a gaseous form. Even what we call simple or elementary substances, are double in their character. Oxygen is usually considered simple, yet we change it every moment into carbonic gas at every breath we draw. Look at marble and lime-stone in which are great quantities of carbonic gas; of them we build temples that may endure for ages, and yet heat shall cause them to go away into vapor—to that state in which the forces caught them and made them what they are. Nor is there any thing in nature but began in a style still more simple than our gases. Whatever may have been the primeval source of the forces which first acted upon the free matter in space and brought it into a spherical form, we know of no forces which are not derived from the sun. There is a doctrine prevalent among the schools, that there is a reduplicative principle between the planets, to which are attributed what are described as the perturbing forces. But if we view this in a different light, we shall see that there is no need of resorting to a miracle even for the centrifugal force; we may trace all back to the Sun, and we need not resort to this, as I consider it, unnecessary theory. We shall perceive that two forces may come from one Sun, just as two forces may come from one magnet. We might perceive that the sun has two magnetic poles as we know the earth has. If then, the Sun have a North and a South pole, also, and the south pole of the Sun be toward the North pole of the Earth, and the North pole of the Sun be toward the South pole of the Earth—this is all that we require—all that is necessary to keep the planet in the course which it now pursues, and to give the magnetic organization to every particle it contains.

I will not now proceed to geology in verification of this theory—for I have too much to say on other points. But it is well known, as a matter practically ascertained by miners, that the *stratification of the earth is alternately negative and positive;* that if one stratum be negative, the one above and the one below will be positive; the third each way will be negative, and so on. We know that this is the case with the hemispheres of the earth. If we take a knitting needle, magnetise it and give it polarity, and then toss it into the air in this hemisphere, [which is negative) the positive will come to the ground first—because the two magnetisms are of opposite denominations. But if we pass the magnetic equator (which I have shown crosses the common equator at an angle of 23° 28′,) and then toss up the needle, the other end will first fall to the ground.—This shows most clearly that the forces ot the earth are fairly represented in that artificially magnetised body. In order that these dual forces may act, the matter on which they act must be negative and positive, as we find is the case with the state of the earth. All the matter in the world is mixed with *alkalies* and *acids*; and these opposite substances enter largely into the composition of all animal and vegetable creatures, producing those alternate contractions and expansions which mark the growth and the decay of life. At the point where the attracting and contracting forces cease, the repelling and expanding forces commence; and where these cease the others commence, and thus the course of alternate destruction and reproduction is continued. I need not refer to the seasons:—in the spring the buds begin to swell—the sap rises into the tree—the leaves spread forth, and the flowers come forth, expand and send out their perfume upon the air. Then, when the summer is past, lo! the leaves wither, fade, shrink, and fall to the ground, and leave nothing but incipient buds of promise. Thus is it with ourselves.—In youth, our frame expands, and we grow from infancy to age; then how do we fade and wither and fall! What is the beating of the heart but an alternate contraction and expansion? Why, how do we lift the arm but by the contraction and expansion of the muscles? How can there be any other motion than those which spring from these forces?

We see all plants which grow have a polarity—I will not insist upon magnetic polarity. One thing is obvious—one part of the plant runs into, and the other rises up from the earth; one side contracts and the other expands; one draws nutriment from the earth, and the other throws out the results in the form of leaves and flowers. You are aware of the changes which result from this. We see another operation of these two forces in the human mind, where the law of attraction and repulsion holds good. All of our mental processes without exception, are in obedience to it. Our very ideas are attracted and repelled. All algebraic and arithmetical operations, from the most simple to the most elaborate, are either negative or positive, or both; increasing or decreasing; contracting or expanding, and so with every other exercise of thought or feeling. Shall I speak of the perpetuity of different races? Shall I ask why, if I take an acorn and plant it upon a continent where no oak grows, it will produce an oak—then a forest, and finally plant the whole continent with oaks—and the same character shall be preserved? Shall we ask if the last tree will not have within it a part of the acorn that was first planted, just as we say of the race of men? What is the reason of this definite character? Once crush this acorn, destroy its polarity, and all the men on earth shall not cause an oak to grow out of it. It will die as a man will die, if you destroy the polarity of his brain by knocking him on the head. The brain may be but slightly injured—there shall be no extravasation of blood, or far less than in cases of intoxication or fever when the man survives; and yet if the brain's polarity be destroyed the man dies. He shall die of lockjaw caused by a splinter; and why? Because his polarity is destroyed. Yet as long as this is preserved in the acorn, it shall continue to produce its like until the planet is covered. The different races are kept distinct; but mix them—produce hybrids, and will they breed? They may for a time, but they will soon perish and stop. Nature allows no monstrosities, producing all her transitions from one form or race to another, by regular causes which come into operation at successive period of the earth's existence, and which are defined by the position of its axis towards the sun.

Geology teaches us that there have been six peri-

ods of the earth's existence, and in this it agrees with the Scripture narrative—the only difference being one, which may be easily reconciled—that relating to the destruction of each of these periods. Many persons, who adhere to their own private interpretation, contend that these must have been of the same duration as our days, which are measured by the intervals between morning and evening; and this too in the face of the fact that the sun did not then exist to define the day as it is now defined. Those who insist upon this interpretation would cause the word of God to conflict with his works; and in my judgment, they are not entitled to any greater respect, as men of true faith than as true philosophers. But there is no necessity for thus setting one hand of the Deity against the other. You remember that history tells us of a time when the hand of ecclesiastic authority was so heavy that no man dare say that the earth moved round the sun; and I am not sure that the great man who did say and maintain this, was not put to the rack before he would recant his assertion; for I have seen his signature to that recantation, and it is written in a hand so unlike his usual autography, there is good reason to believe he was taken from the rack—the iron glove was exchanged for the pen with which he signed the paper declaring that the earth did not move round the sun; and we are told, too, that as he rose from his knees, he exclaimed in a whisper to his friends, 'but it *does* move though;' and now we know that it does. Yet this doctrine was opposed to all the religious prejudices of that day. Let us thank God thet we live in an age when we have the right of private thought, even over the Scripture itself.

If we believe the Scriptures to be fully, unerringly inspired, they *must* agree with the irresistible evidences of nature, for these no man can change or cancel. To me they seem to harmonise, not only in reference to the periods of creation, but even in higher and more mysterious doctrines; these periods, called "days," and measured by the "morning and the evening," were as vast as geology shows them to have been, for aught the Scriptures say to the contrary; for how could they have been common days, as brief as ours, when the Scripture itself declares that the sun and moon, by which alone we measure time, were not yet created? And even at the commencement of the sacred history, there is a high doctrine of religion intimated in the word *Eloihim*, Gods, designating a plurality in the creative power of the universe, which also agrees with the deductions of philosophy, for two spiritual or immaterial forces acting upon matter, appear not only to be absolutely necessary, but to actually exist, and thus the great doctrine of the Trinity is also one of philosophy. And may I not venture to add that this theory of creation, is beautifully revived and illustrated in the Christian creed of an incarnate principle, proceeding from two spiritual ones, and in the mystical symbol of the equilateral triangle, so profoundly revered by the ancient nations? And the creative and reproductive energies of this trinity of nature, are still in perpetual operation. As we have seen in the example of the acorn, and other seeds, one modification of matter is converted into another, and preserved in a distinctive character and type, through endless multiplications, by the original incarnation of the two creative forces, in matter possessing certain definite proportions. Nor is there a living form in nature which is not reproduced by these forces, from other kinds of matter, as in the original process of creation.

Prior, however, to our tracing the first successive periods of creation, as caused by a change in the position of the earth's axis toward the sun, we may briefly advert to certain minor influences upon climate, and therefore upon animals and vegetables, arising from another motion of the earth, of narrower limits and consequences. In the previous lectures of this course, I showed you from numerous observations embodied in Dr. Sherwood's Astro-Magnetic Almanac, for 1842, and not yet published, and from a memorial which was presented to Congress in 1839, that the earth is magnetised by the sun in the direction of its path from tropic to tropic, and therefore in the angle of the obliquity of the ecliptic or 23° 28′; that therefore the magnetic poles, or vortices, are situated at the same distance from the terrestrial poles, that the tropics are from the equator, 23° 28′, and therefore in latitude 66° 32′ north and south, which is that of the arctic and antarctic circles. I also proved that these magnetic poles or vortides, revolve in those circles at the rate of 32′ 26″ a year, and therefore perform an entire revolution of 360° in 666 years. Now in thus revolving, they affect not only the needle, causing it in every latitude to exhibit alternately an easterly and westerly variation, but also affect the climate in every latitude.—The magnetic poles or vortices, are the seats of maximum cold; and the line of no variation which runs between them, and which, as I have shown you, encircles the earth at the angle of 6 degrees 28 minutes with the earth's axis of rotation, exhibits the true angle of the isosthermal lines of climate.—When the magnetic pole is nearest to any place, then is about the time of the greatest cold of that place; and as it is at opposite points of its circle of revolution in half of its period, or in 333 years, the maximum changes of climate take place in this time. Anciently, we had a climate suited to our latitude, and shall have it again, and we are now actually acquiring it. It was called the land of vines by the Northmen who visited it, and it will again be luxuriant in vegetation, For many years past, our winters of New-York have been more severe than those of London, which is situated in latitude 51° 31′, and therefore, more than ten degrees farther north. But for a few years past, since the year 1791, when the line of no-variation passed over our longitude, our winters have been gradually, though irregularly, growing milder, and those of Europe more severe; and they will continue to get worse there for about 300 years, while ours will improve. The Baltic, which used to be frozen over as our bays were, so as even to bear the transportation of cannon, will be so again. Iceland may be again unapproachable for ice, and sleighs and sledges, now unknown in England, may be familiar there and forgotten here, until the mild period comes round to them, and becomes again lost to us. The ice breaking up in the north-east of Europe, and crossing over toward the south-west, may cause our Springs to be fickle for some years; but after this, our seasons will be regularly graduated according to our highly favorable climate. It is an interesting fact, which I may here incidently mention, that the track of the magnetic pole from east to west, is indicated by the northern lights, which are occasioned by its action upon a moist atmosphere. The north magnetic pole being a negative force, and water being a negative body, they repel each other, and those diffusions of light, which we see in the Aurora Borealis, are the consequent phenomena, for diffusions are always the result of repulsions, as contractions are of attractions. Hence the greater quantity of water in the southern hemispheres than in the northern, for the south magnetic pole being positive attracts the water which is negative, while the north repels it, for you will remember that forces of opposite denominations attract, while those of the same denomination repel.—Hence while a dry atmosphere is essential to an Au-

rora Borealis, a humid one is necessary to an Aurora Borealis. It is true, Captain Ross speaks of an Aurora Australis in lat. 74 or 75 north, but was beyond the north magnetic pole, which is lat. 68° 32′, and although he was on the verge of its vortex, as was shewn by the great dip of his needle, it was thus to the south of him, and he accordingly saw the lights in that direction. When the humidity of the atmosphere extends from the latitude of the magnetic pole to that of the place of observation, the streamers will reach our zenith, and will be more or less gorgeous according to the continuity and quality of that humidity in the intervening degrees of latitude. The inhabitants of closely neighboring latitudes to that in which the pole moves, have often been terrified at the astounding magnificence of these displays. The people of Ireland, in particular, it is said, thought the world was coming to an end, as some of our timid people did when they saw the great shower of meteors, not being aware that it was only the magnetic end of the world that was passing through their arctic region at that time.—And there is very little doubt that the discovery of the latitude and rate of motion of these great controlling vortices of magnetism will evidently reduce the laws of variable climate to a science of great exactness.—*N. Y. Tribune.*

ANTHROPOLOGY.

MAN AND HIS DISEASES.

BY P. CUNNINGHAM, ESQ.

REMEDIES IN DISEASE.

The operation of rotation, so successfully employed by Dr. Cox, in the treatment of mania, I should set down as the most powerful of all general remedies, in the treatment of galvanic disease. It counteracts the central attraction of the electro-magnetism of the body by its centrifugal influence, thereby throwing it toward the surface, and even eventually from the body in proportion to the rapidity of the rotation, and consequently preventing its too powerful operation on the internal parts. It is no doubt through the influence of this rotation, that the electro-magnetism is made to form zones encircling the superfices of the earth, a rotation which is seen, in the experiments upon bodies in the class room, to eventually eject the above from their superfices in shape of sparks. While rapid rotation thus checks diseased action, a milder application must tend to equalise the electro-magnetism throughout the body, and thereby keep it in health. Swinging, cradle-rocking and horse-back exercise, no doubt act beneficially in a similar way, but rotation must be infinitely more powerful than any of them; so powerful indeed, that I have no doubt even death might be occasioned by carrying it on too rapidly and too long.

Sleep is always found to result from a moderate use of it, and vomiting and fainting, when carried to a greater extent; an extent, however, which, in acute diseases, it may b. often necessary to proceed to. We see a natural instinct in man to resort to this powerful remedy for relief, in his rolling about when in acute pain, and instinctively turning in bed, when restless and uneasy, for the attaining of ease and sleep; by this not only equalising the body's electro-magnetism, but changing also the poles thereof. Even animals seem well acquainted with its useful effects, always rolling themselves after their day's work, as well as when disease attacks internal parts, particularly in inflammation of the bowels and colic.

BLEEDING.

This is always found to be most effective when carried to vomiting and fainting, by which its primary effects seem assimilated to rotation, from evidently causing the above effects through sudden electro-magnetic subtraction. When bleeding, however, is resorted to in small and repeated quantities, a stimulant effect is the result; a white dry tongue, quick pulse, thirst, flushed face, and all the other usual febrile symptoms ensuing, when this practice is adopted.

Dr. Watts' treatment of diabetes is an exemplification of this; similar ones to which I have witnessed in other diseases subjected to repeated bleedings, and the same must have occurred to every medical man during his practice. This general febrile excitement may be accounted for, by the gradually thinner state of the blood admitting the electro-magnetism to act more and more readily upon it, in the same way as we find the more fluid kinds of food to be more readily acted on in the stomach, or digested than the more solid. It is, indeed, a common custom with farriers to take small bleedings from poor horses, for the purpose of bringing them into good condition, these acting as most useful alteratives when excrementitious disease prevails.

ABLUTIONS AND FRICTIONS.

When we contemplate the important offices performed by the skin, of its not only being the medium of transmission of all the electro-magnetism to and from the body, required in the performance of the various functions, but the outlet for one of the principal bodily excrementitious secretions—viz. the perspiration; the necessity, therefore, of keeping this important communicating medium in a state of health is sufficiently obvious. Spongings with water, and frictions with a hard towel, have been, in fact, found to render the most important services to the general health, by every individual who has put this plan in practice, increasing the hilarity of the spirits, giving a comfortable feel to the body, promoting the appetite, and steeling the system against the influence of the various diseases which may be prevalent at the time.

INSULATION AND CAUSTICS.

As electro-magnetism, the food of all diseases, passes to these through the pores of the skin, hence the covering of this with a non conductor, or the conversion of the skin itself into a non-conductor, must have a powerful influence over disease, by cutting off its electro-magnetic supply. Flannel, cotton and silk padding, flour, various of the metallic oxides, and resin-plasters,—all non-conductors, must owe their beneficial effects principally to this virtue in them; while the mere dyeing of the skin of a dark color will necessarily exercise a similar influence by cutting off the supply of *one*, at least, of the above active bodies, which is no more, probably than what the greater portion of the others perform. This dyeing of the skin I have hitherto effected by a solution of nitrate of silver, and have witnessed from it the most beneficial effects in arresting the progress of incipient tumours; but I doubt not, that the same good would result from a coating of paint, of which colours I conceive white would be the best, from its repelling the electricity and attracting the magnetism by which excrementitious action (the action desired) will be excited, and the recrementitious action consequently arrested. Blisters perform a double office; not only translating the internal galvanic disease to the surface, but, by their oxidating effects upon the skin, preventing the further ingress of electro-magnetism to the disease.

Of all the blisters, nitrate of silver is decidedly the best, because its action commences the moment it is applied, while the action of the common blister does not take place for several hours, during which time the disease within may have made a rapid progress toward an unfavorable crisis. I never witnessed the slightest bad symptom produced, even by the most extensive application of this very active remedy, having been obliged once to cauterise the whole of the abdomen in the course of a few days, to arrest the progress of a violent attack of peritonitis, which continued obstinately spreading beyond the verge of the first partial applications. Whatever insulating coverings are made use of, should embrace the surface closely, so as to prevent the atmospheric air from circulating between them and the skin, otherwise but little comparative benefit will be derived from their application.

SEDATIVES AND NARCOTICS.

During sleep there is a cessation of all the voluntary actions, and a diminution even of the involuntary, as evinced by the slower state of pulse and respiration than when awake. As all the above, therefore, are dependent upon galvanic action, whatever diminishes the activity of the latter, must necessarily conduce to sleep; and as I have previously exemplified that electricity in excess, or magnetism in excess, decrease this activity, and in large amount even cause a total cessation of it, so therefore both electricity in excess and magnetism in excess, must tend to sleep, and even, at last, death itself, when in too great quantity.

This reasoning seems borne out by the effects of electricity or magnetism in excess, upon the human body: great heat or great cold, a large dose of spirits, or a large dose of opium, all exerting a soporific power upon the constitution. The soporific influence of rotation seems referable also to its decreasing the galvanic activity, which it may accomplish in two ways, either by throwing out the electro-magnetism from the system on which the galvanic activity is dependent, or otherwise by causing that on the surface to move in a circular manner thereon, and thereby prevent it from passing inwards to keep up the galvanic activity there. It is in this way that what is called animal magnetism produces, I conceive, its soporific effects, the hands, or whatever other substances are used to excite it, being made to describe circles on the body's superfices, until sleep is induced. I had been accustomed to consider animal magnetism as a mere deceptive quackery, until informed of the extraordinary effects of it publicly exhibited by a Spanish quack at Tacna (Peru), upon a large portion of the population there, and in presence of individuals too acute to be deceived and too honorable to lend their name to any species of imposition; though the operator naturally made himself contemptible in their eyes, by avowing not only its capability of curing diseases but of revealing the situation of hitherto hidden gold and silver mines, during the opiate kind of dreams to which it gave rise. Some who witnessed the facts, ascribed them, as is usually the case, to the imagination; a power, no doubt, possessing immense influence over all the bodily functions; but when we consider that the superfices of the human is covered, like the superfices of every substance, living or dead, by a mass of electro-magnetism, we may presume that the disturbing of the usual motions of the latter, must have considerable influence also over the above functions.

Should the excitation of a circular motion among the currents of the electro-magnetic elements be the real cause of the soporific effects produced by animal magnetism, its failure in many cases may be ascribed to the part of the human body operated upon, and the operating body, being both in the same state of electricity, and consequently repelling each other. Thus in a human body stretched horizontally in the northern hemisphere, the under part will be magnetic and the upper electric; and should the outspread fingers be made to describe the circles upon it, they will be magnetic when dependent, and electric when elevated; so that to produce currents in the upper parts of the body, the fingers must be magnetic, and *vice versa*, if in the under part of the body; because they will then attract instead of repel the substance they are intended to excite a motion in, and thereby draw a current of it after them. That many of the popular charms cure disease by their influence on the imagination there can be but little doubt, because upon it only can many of them act; but in local diseases the curative effect may, I conceive, be often ascribed to the circular motion given to the electro-magnetism of the superfices, by the circles usually described on such occasions, by the fingers of the operator, round the seat of the disease, during the mumbling over of the mystic words through whose influence the cure is supposed to be effected. Substances are considered narcotics which produce a sedative effect upon the system; an effect arising from a diminution of action in all the bodily functions, whatever the nature of these may be. Now as both electricity and magnetism in excess, as well as electric and magnetic substances in large doses, excite a sedative action; so electricity and magnetism in small quantities, as well as electric and magnetic substances in small doses, may be presumed to excite a stimulant effect, and such indeed seems to be the case; heat and cold in moderation, as well as spirits and opiates in moderation, acting uniformly as stimulants; the effect of the dose, however, being naturally proportioned to the amount of electricity existing in the body at the time.

But as recrementitious diseases, viz. those of a stimulant or electric nature, and excrementitious diseases, or those of a sedative or magnetic nature, are apt to terminate in each other, hence great caution is requisite when such diseases so alternate with each other in the system, as to the mode of treatment pursued; because sedatives in excess during the stimulant paroxysm may excite a too powerful excrementitious action, and in the same way stimulants in excess during the sedative paroxysm may excite a too strong recrementitious action, by either of which, in excess, life may be destroyed. Several of the types of fever afford an illustration of this, but the disease called delirium tremens the best of any; bleeding in some cases of this having been of decided benefit, and in others productive of fatal results, the error arising from being either employed continuously or else carried too far, and hence a medium treatment is, on this account, considered the safest to pursue; namely, the exhibition of purgatives in moderation, to excite a moderate excrementitious action, and that of stimulants in moderation, to excite a moderate recrementitious one, so that by the moderate use of two opposite remedies an equilibrium between the above two actions may be attained.

STIMULANTS.

These may be divided into the active stimulants, producing an immediate stimulant effect, such as food, spirituous liquors, tea, coffee, &c., and slow stimulants producing a slow stimulant effect, such as various of the non-purgative neutral salts, various of the metallic salts and oxides, &c.; the difference of effect between the two being probably owing to the different facilities of their decomposition, so that

the active stimulants being decomposed in the intestines, would naturally produce a quicker excitement than the slow stimulants absorbed into the circulation before decomposition was effected in them. This view seems corroborated by stimulants in excess producing a sedative, or excrementitious action, consequent on the primary stimulant, or recrementitious one, which would naturally be the result when the stimulant substances were in large amount to be *wholly* decomposed in the recrementitious vessels; the undecomposed portion of them now passing into the excrementitious vessels, and consequently causing by its decomposition there an increased galvanic action throughout them, so that their secretions being of a fluid excrementitious nature these would be poured out in greater quantity.

ALTERATIVES.

These may be either stimulants or sedatives, the name signifying simply a capability of altering diseased action, or, in plainer language, translating of it from one class of vessels to another; the stimulants changing the action of the excrementitious to the recrementitious vessels, and the sedatives from the recrementitious to the excrementitious vessels. Proper caution must, however, as I have before remarked, be observed, not to push either course of treatment too far, in case the new action produced should be so powerful as to be equally prejudicial to bodily health with the old one which it succeeded.

I have already exemplified that either electricity or magnetism in excess retard the decomposition of bodies, and to this excess of electricity in the slow stimulants, and of magnetism in the slow sedatives, may probably be ascribed the slower decomposition and consequent tardier action of the above than of the more active; and to this proportionate tardiness of decomposition, indeed, even the recrementitious and excrementitious remedies may, in a great measure, owe their respective effects; because electricity being more powerful in its attractions and repulsions than magnetism, the electric or recrementitious remedies would therefore be decomposed before the magnetic remedies, the latter of which passing into the excrementitious vessels, in which the recrementitious terminate, before decomposition commencing in them, would consequently thus excite an increased galvanic action there.

All sedatives tend to increase the fluid secretions, and to diminish thereby the solid secretions, and consequently the body's solid bulk; while all stimulants tend to increase the solid secretions, and thereby diminish the fluid secretions, and consequently to increase the body's solid bulk; there being little difference between a recrementitious disease excited by mercury, salted, or easily digestible food, or ardent spirits; the same enlargements of the bones and other solid parts, and the same spongy gums, salivation, and fœtid breath, being liable to ensue in all.

POISONS.

The active stimulants and sedatives operate as poisons in large doses, it being only in small doses that they operate as alteratives; producing death in large doses, as I have previously illustrated, by causing a cessation of galvanic action in the system. In medium doses they will cause death again by either the excessive recrementitious, or the excrementitious action which they have respectively the power to excite, both actions being, however, usually blended in the deaths from medium doses, on account of recrementitious and excrementitious disease being so apt to terminate the one in the other; and thickening and redness in the coats of the stomach, as well as ulceration thereof, are generally met with in dissections of deaths from the various poisons.

EMETICS AND PURGATIVES.

Emetics exciting a contraction of the muscles of the stomach, and thereby ejecting its contents, their action must consequently consist in extracting the electro-magnetism from the muscles on which their dilatation depends.

In the motions of the involuntary muscles, as exemplified in the heart and arteries, the extent of their contraction by the withdrawal of electricity seems always to correspond to the extent of their previous dilatation by the electric infusion into them; and hence I conceive that the contraction of all the involuntary muscles, at least, must be induced by a large infusion of electricity into their fibres immediately previous to the above contraction. This view seems collaterally corroborated by the contractions excited by the electric shocks always corresponding in intensity to the intensity of these shocks. That emetics and the stimulant purgatives, therefore, should excite contraction of the muscular fibres of the stomach and intestines by a previous infusion of electricity into them, seems very probable, and is, indeed, in some measure, borne out by the three powerful emetic substances, sulphate of copper, sulphate of zinc, and mustard, giving out heat during their mixture with water, owing, most likely, to their containing greater amount of mass-electricity than of mass-magnetism. The various remedies, again, which give out cold during their mixture with water, must contain a greater amount of mass-magnetism than of mass-electricity, none of such, that I can recollect, acting as emetics, but all operating excrementitiously upon the bowels, the skin, or the kidneys, as we find nitre, glauber, and Epsom salts to do. Hence we have warm and cold purgatives, the first being chiefly indicated in excrementitious diseases, and the latter in recrementitious; the first acting as stimulants before a sedative action can take place, and the second exciting a sedative action eventually followed by a stimulant one, if the primary sedative one is not maintained by a continuance at short intervals of the cold purgative doses.

Some of the stronger poisons, such as arsenic and opium, operate as emetics, in large doses; their action, however, being instantaneous, while that of the common emetics is usually slow; therefore, as the electricity must be extracted from the muscles to cause them to contract, the above poisons must contain a considerable portion of electric attracting matter, in order to excite the above emetic effects. This seems evidently the case, from both arsenic and opium, in small doses, having usually a primary stimulant action; though this stimulant principle is now separated from the narcotic principle of the opium, in the substance known by the name of morphine, whose action seems to be of a directly sedative nature. Emetics, when not operating as such, usually produce a purgative effect, and hence the principal difference of action between the generality of poisons, emetics, and purgatives, seems to be in the comparative facility of their decomposition; poisons and emetics being of easier decomposition, consequently undergo this in a great measure before leaving the stomach, while the more difficult purgatives are enabled to pass onward to the intestines, before decomposition has proceeded far in them, and consequently excite their peculiar actions there. The exact difference between the composition of human food, and of poisons, emetics, and purgatives, as far as regards their comparative electric and magnetic affinities, is an intricate question to decide; but certainly food, instead of affording healthy nutrition, frequently operates as a poison, an emetic or a purgative; often, indeed, combining more or less the actions of the whole three.

The above effects of food must arise from the disproportion of electricity and magnetism in it or in the atmosphere, but generally from excess of magnetism in the one or the other, from the diseased action produced by bad food being generally of an excrementitious nature. Food in a state of decomposition is apt to produce such effects, though they are equally liable to arise from food not easily decomposible, or taken in greater quantity than the galvanic action in the stomach can digest. The palate here serves as a useful monitor as to what is required to render food wholesome, and if we only attend to its dictates. few bad consequences would accrue from any meal of the usual food to which it is accustomed; the common condiments, pepper, salt, mustard, and vinegar, being all put in requisition by it, according as its judgment dictates; and in quantities, too, to render this food either more digestible or less so, as it finds the peculiar state of the stomach to require. The partial putrescency of food does not render it unwholesome, provided proper condiments be used; it being often necessary to let tough beef, mutton, and fowls hang till this begins to take place in order to make them more tender, and thereby render them more easy of mastication as well as of digestion. Game, indeed, is considered unfit for use until putrescency has considerably advanced in it; finding, as is the case, that this renders it even more wholesome than in the fresh state, provided a proper mode of cooking be pursued. Hence the immense quantities of meat and fish yearly destroyed in London, might, by very simple means, be converted into wholesome food, and a great waste thereby prevented in the staples of life; boiling it with some lumps of charcoal destroying the fœtor, and salt and pepper rendering it agreeable to the palate, as well as salutary as an article of regimen.

During the prevalence of cholera, many fatal cases are recorded as arising from the use of putrescent food; but the same was also observed from an over indulgence in fruit, and hence it would be unjust to draw general conclusions from the action of either at a solitary period, and thereby set both down as pernicious. When the cholera existed in H. M. S. Tyne, I remarked that the common doses of purgatives, to remove ordinary constipation in persons of full health, produced the most violent cathartic effects; and those accustomed to take occasional purgatives must have often remarked that the same dose which, at one period, may fail, at another operates in the most powerful manner; all doubtless arising from either the peculiar electro-magnetic state of the atmosphere, or of the person's own body.

ELECTRO-MAGNETISM.

This being the exciting cause of all the actions in the human body, hence in some diseases a continued galvanic stream kept up through the body, or any local part thereof, where there was a deficiency of action, might be productive of very useful results; while, in others, a saturation of the body with electricity solely, or with magnetism solely, might be equally beneficial. This saturation could, of course, be only accomplished by placing the patient upon an insulated bed, and connecting him with the electric or magnetic wire, according as either was required; insulating the bed upon both glass and resin, in order to render the process sufficiently secure. In excrementitious diseases the body should, of course, be saturated with electricity, and in recrementitious diseases with magnetism; a suggestion worthy of consideration in those terrible disorders, tetanus and hydrophobia, which have hitherto baffled medical skill. The magnetic wire might probably be also be usefully applied in enlargements of the solid parts, from the excrementitious action, and consequent diminution of size, to which it would give rise. Iodine, a most successful application in such cases, I doubt not, produces a similar excrementitious action from being a sedative, and consequently a magnetic attractive body; but it is only applicable in external diseases, while the magnetic wire can be readily applied in several of the internal, by constituting it of gold, and insulating it in a caoutchouc bougie, or some other equally effective substance. In enlarged prostrate the wire might be introduced through the rectum, into contact with the part, while in enlargements of the liver, the magnetic stream might be directed through the seat of the pain, as showing the channel to the disease. The stone in the bladder may be yet found reduceable by galvanic action, either by the application of two wires insulated contiguously in the same substance, or by that of the single wires, according as the stone was affected by acids or alkalies; that is, by magnetic or electric substances. The chief difficulty would be to know which of the two, electricity or magnetism, was most suitable for the decomposition of the stone, or whether it was of such a composition as to require the influence of both the wires. This might be guessed at by the chemical examinations of weak acids and weak alkalies injected into the bladder, the calculous matter soluble in the acids naturally requiring magnetism in excess to decompose it, and that soluble in the alkalies requiring, on the contrary electricity in excess; because whether you introduce magnetism solely or electricity solely, the one introduced would always attract a sufficiency of the other from the human body to enable it to carry on a local galvanic action in the part to which it was applied. The action, however, of the two wires would, I conceive, be the most effectual, provided the point of the bougie containing them could be applied directly to the stone, which would not be a difficult matter to those accustomed to use the sound; the bladder being necessarily filled in such cases with some imperfect conducting fluid capable of protecting its coats from the action of the wires. My friend Mr. Copland Hutchison, in an ingenious paper upon calculus, has proved the extreme rarity, if not actual non-existence, of calculus among seafaring men, which he attributes to the quantity of alkaline matter in their food. This alkaline matter being the muriate of soda, an active recrementitious substance, the active recrementitious action produced by it would tend to prevent excrementitious action, and the depositions consequently resulting therefrom; as a too high recrementitious action in all female animals is shown to prevent the generation of their species, which not being a substance requisite for the sustainment of any of the actions by which the female body is kept in health and vigour, is therefore an excrementitious substance as relates to the female body, as its ultimate ejection therefrom sufficiently proves.

PARTICULAR DISEASES.

PREFATORY REMARKS.

In both recrementitious and excrementitious diseases, rotation and insulation will be equally beneficial. Indeed, we often see nature attempt the latter by the formation of an oxidated crust, or scale upon the skin, in various cutaneous complaints, through which the progress of the complaint is checked. As a general rule, I think it must be beneficial to insulate the brain, in all acute diseases, seeing the powerful influence, either direct or indirect, which it exercises over every part and function of the body. This point was strongly impressed upon

me in case of an inflamed bladder on board the Tyne; the patient's great relish for vegetable acids assured me that the action was recrementitious; and after bleeding, insulating, and other requisite treatment, he was at length enabled to pass his urine freely. Two relapses, however, induced me to consider the disease more particularly, and finding that the attacks always commenced when he attempted to pass his urine, and were preceded by great pain in the back, where the nerves of the bladder have their origin, I concluded, therefore, that the volition to contract the bladder was too intense for its irritable state, and that the brain must be consequently insulated also. After effecting this by means of a tightly bound silk handkerchief, and directing not to urge too strongly the urinary flow, but await patiently nature's milder efforts, no further relapses took place, and a speedy convalescence succeeded.

MADNESS AND MELANCHOLY.

Both of these being diseases of the mental functions, consequently point out the brain as the active seat thereof; the increased excitement in the first showing it to be an electric, or recrementitious disease; and the diminished excitement in the second, that it is a magnetic, or excrementitious one. As, however, recrementitious and excrementitious diseases so often alternate with each other, it is a great point to ascertain in compound diseases, if I may so term them, which of the two is the primary or principal affection, because to this the leading points of treatment should be mainly directed.

Rotation, that active remedy so successfully employed by Dr. Cox, as well as partial or complete insulation of the head, would, I conceive, be equally useful in both diseases: the first by equalising the electro-magnetism of the body, and the second by preventing a morbid application of it to local parts, while swinging in bed, to moderate the above morbid electro-magnetic introduction, and purgatives to promote the healthy state of the excrementitious bowel discharges, must be also beneficial in both. when due caution is observed. Ablution and friction of the skin should, also, never be lost sight of, because on an unhealthy state thereof disease must be more or less dependent, from its being the great medium through which the whole of the electro-magnetism, retaining the body in health, or throwing it into disease, is conveyed. The clearing of the skin, therefore, from morbid excrementitious matter, I should conceive to be quite as necessary to bodily health, as the clearing the intestines therefrom, seeing that the functions of both are upon a par as to their relative importance in sustaining the animal machine in a sound and vigorous state.

The science of phrenology seems destined to be of great service in the treatment of mental affections, because, when only one of the mental organs is diseased, the local remedies required may be applied solely thereto, without making the same general to the whole of the head, which in some cases may be of doubtful utility, particularly such where there is an increase of excitation in one organ, and a diminution thereof in another.

FEVER.

As far as my own observation extends, the brain seems to be the primary part affected in continued fever, and therefore insulation of the head after effective rotation will, I conceive, generally check it at the commencement. I found, indeed, insulation of the pained parts of the head alone, by means of lunar caustic, to accomplish this in five cases consequent on cholera, where the forehead pain, flushed face, peculiar excitability of the eye, hot skin, and quick pulse, predicted an incipient typhus; sound sleep, and a speedy cessation of all the above symptoms, ensuing therefrom. Swinging in a cot in the interval between the rotations, must be evidently of infinite service in all general diseases, and hence should never be omitted in acute ones. Ablutions, frictions of the skin, and purgatives, I have, in a preceding chapter, already sufficiently expatiated upon as remedies in general disease. All the above, when used with judgment, must be equally beneficial in both the recrementitious and excrementitious fever; but as I have never seen any species of continued fever that was not of a mixed nature, therefore the primary or leading action of the two must be the one to which attention should be chiefly directed.

Recrementitious action has always appeared to me to be the leading action in the various fevers I have met with; acid fruits and drinks being as much relished during the continuance of the fever, as salted and high-seasoned substances were after its cessation, when the excrementitious action by which the previous recrementitious fever had been cured was proceeding to too great an excess, and thereby made premonitory demands upon the palate for articles capable of checking its further increase. Cold affusion, as a general remedy, must be as often hurtful as beneficial in recrementitious disease, from its temporary sedative effects being speedily followed by those of a stimulant nature; so that when recrementitious action is the leading disease, the cold applications must be *constant* (at least while the recrementitious action exists) to insure a beneficial result. When these cannot be made constant to the whole of the body, or it might appear injudicious so to apply them, the keeping up of a continued evaporation from the hands and feet might answer all useful purposes, seeing that the temperature of the whole body is so readily affected through them.

The period when cold affusion is most likely to be of service, is during the excrementitious portion of the febrile paroxysm, when a sudden dash of a bucket of cold water over the body, followed by brisk dry frictions with towels, might cut the paroxysm short by the subsequent stimulant action which it would create. In a former chapter I have exemplified the fact of electricity in great excess acting as a sedative like magnetism; and hence, when such is the case in the human body, a moderate application of cold or other sedative remedy will act as a stimulant, by reducing the electric excess causing the above sedative effect.

When, therefore, excessive depression in the nervous and vascular system exists, it is an important point to decide whether excess of electricity or excess of magnetism be the cause thereof, from magnetic remedies being required in the former, and electric remedies in the latter. In the violent febrile affections where excessive recrementitious and excrementitious action alternate rapidly with each other, fatal consequences, however, must frequently ensue from excrementitious remedies being applied in excess in the former period of the febrile paroxysm, or recrementitious remedies in excess in the latter, in consequence of the excess of an opposite action to that which these remedies were intended to counteract, being induced by an excessive application of them singly. Thus. in many febrile diseases, where the great fulness of pulse, heat of skin, and apoplectic torpor of the brain, indicated an excessive stimulant or recrementitious action, a large bleeding, though affording instant relief, has often been the cause of death, from the excessive sedative or recrementitious collapse to which it has eventually given rise. In such cases, therefore, the bleedings must be small, to be safe; the securest way of proceeding, however, being to reduce the excessive stimulant action by the

cautious application of cold, or by a gentle dose of some directly sedative remedy, in a similar way as we gradually reduce excessive magnetic collapse in a frozen limb by the cautious application of stimulant remedies, which applied in excess would insure its destruction by the excessive electric or stimulant action to which they would eventually give rise.

Charcoal being a highly combustible body, and a good electric conductor, as well as the most efficient substance known for preserving dead matter from putrefaction, or of checking this when it has commenced, hence I would consider charcoal powder as the most powerful stimulant or recrementitious remedy that could be administered in the excrementitious stage of fever, particularly in the advanced state, when excrementitious action begins to exceed the recrementitious, and thereby eventually either cures or kills.

The as great regularity in the return of intermittent paroxysms as the revolutions in the planetary and cometary bodies round the sun, point to something like an analogy between the causes upon which both are dependent for this coincident uniformity, and I conceive the regularity of the intermittent revolutions to be explainable on principles assimilating to the planetary revolutions, viz. by the magnetic currents ushering in the primary cold paroxysm, circling in a definite period round some of the surfaces of the body. There are three surfaces where the mass-electricity and magnetism could be contained, for each to follow the respective courses of motion I have ascribed to them, viz. the skin, the peritoneal lining of the abdominal parietes, and the peritoneal covering of the intestines The greater the predominance of electricity, or heat, upon a surface, the more rapid will naturally be the electric and magnetic motions thereon; so that I would attribute quotidians to the magnetic current circling round the intestines, tertians to that circling round the internal abdominal parietes, and quartans to that circling round the skin. From the feelings in my own case, as well as of those laboring under intermittent disease, the cold paroxysm seems to be induced on those curren s reaching the spine (the origin of many important nerves), from the first sensation of cold being experienced there. It is a curious fact, that the internal or external application to the body of any substance exciting galvanic action, will bring on an intermittent paroxysm earlier than usual, when the above is applied near to the period of the paroxysm's expected return. I have observed eating frequently produce this effect; and in my own case, the first premonitory symptoms experienced were on taking a glass of Madeira and a biscuit at luncheon time. The Peruvians, from having intermittent paroxysms so often brought on by washing or shaving, cannot therefore be persuaded to attempt either when laboring under this complaint, and any medical man who advised these would risk the loss of his practice.

MISCELLANEOUS.

MEDICAL THEORIES.

If it require the establishment of first principles to constitute a science, it would seem to follow, that this is a distinction to which medicine is not yet entitled, inasmuch as we know, that in the various medical theories more things are assumed, than in almost any other department of scientific investigation.

As a matter of curiosity, we give the following from the *Medical Reformer*, as specimens of the various medical theories which have their advocates at the present time.

DR. BROWN'S THEORY.

1st. To every animate being is allotted a certain portion of the principle on which the phenomena of life depend. This principle is denominated excitability. 2d. The exciting powers are external and internal stimuli. The former are heat, food, wine, poisons, contagions; the latter, the functions of the body itself—contractibility, thought, emotion and passion. 3d. Excitement is the *effect* produced by the action of the exciting powers, or excitability. 4th. Life is a *forced* state. If the existing powers are withdrawn, death ensues, with as much certainty as if the excitability was gone. 5th. By too great excitement, weakness is produced, because the excitability becomes defective. This is *indirect debility*. Here the excitability is in excess. Ergo, when the excitability is *defective*, it produces *indirect* debility; but when the excitability is *deficient*, it then produces direct debility. 6th. Every power that acts upon the living frame is a stimulant. 7th. Excitability is seated in the medullary portion of the nerves, and in the muscles. Dr. Christie has illustrated this theory, by a familiar similitude. Suppose a fire to be made up in a grate filled with fuel, not very combustible, and a machine placed before it, containing several tubes pouring constant streams of fresh air upon it. Suppose another pipe, fixed at the back of the grate, through which a constant supply of fresh fuel was poured into it, to supply the waste occasioned by the flame. The grate is the human frame; the fuel in it, the matter or principle of life; the excitability of Dr. Brown, and the *sensorial power* of Dr. Darwin. The pipe behind the grate, pouring in fuel, is the power of the living system to Regenerate itself, or re-produce excitability; the air machine with several tubes, is the various stimuli acting on the body, and the flame is the phenomenon of life. Thus the curious and comprehensive system of Dr. Brown is summed up briefly in this plain similitude, to which is added this further illustration: "As life is a forced state, according to the doctor, it is said, when one tube of the machine pours in pure air, this signifies the highest degree of stimulant; when common atmospheric air, the common stimulants of food, drink, &c., and when impure air, it indicates the sedative powers, as poisons, putrifactions, marsh miasmata, foul air, stagnant water, &c. From these few examples, it is an easy matter to understand Dr. Brown's Theory. The more a spark is blown, the brighter it burns, and the sooner it is spent. This sage saying exemplifies what is remarked by Dr. Brown, when he affirms that the stimulating powers support life, and at the same time consume it, because they waste the excitability; therefore, the necessity of sleep, when all the exciting powers are withdrawn, to give the living principle time to accumulate its excitability.

DR. RUSH'S THEORY.

With Dr. Brown, he affirmed, 1st. Life to be a forced state. 2d. Life, as applied to the human body, included motion, heat, sensation and thought; these four when united, compose perfect life. 3d. Every part of the human body, nails and hair excepted, is endowed with excitability. *Sensibility* means, the power of having sensation excited by the action of impressions; *excitability*, the power of having motion excited by means of impressions. 4th. The human body is so formed, that if impressions be made upon it, in its healthy state, in one part, it will excite sensation, or motion, or both, in every other part; hence the body is a *unit;* ergo, disease is a *unit.* 5th. Life is the effect of stimuli acting on the excitability and sensibility, which are

extended in different degrees over every part of the body. Dr. Rush agrees with Dr. Brown, that life is a forced state, and the effect of stimuli. He divides these the same as Brown, into external and internal. But for the matter or principle of life itself, he adds sensibility to Brown's excitability. He will not admit with Brown, that debility is disease, but only a predisposing cause of disease. Dis ease consists of a morbid excitement, and the cure of disease consists in restoring the equal diffusion over the whole body. Air, by exciting respiration, gave the first impulse of life. When man was formed, God breathed into him the breath of life; that is, says the doctor, atmospheric air, dilating his nostrils, inflating his lungs, and thus excited in him the whole phenomena of animal, intellectual and spiritual life. And hence, life is the effect of stimuli acting on an organized body.

DR. THOMSON'S THEORY.

All bodies are composed of the four elements, *earth, air, fire and water*. Earth and water constitute the solids, and air and fire the fluids of the body. The healthy state consists in the proper balance and distribution of these four elements, and disease by their disarrangement. All disease is caused by obstruction; the mode of cure is to remove it by diffusing heat over the system; for *heat* is life and *cold* is death. All diseases are the effect of one general cause, and therefore require a general remedy. Whatever supports the internal heat and directs the determining powers to the surface, will expel the disease and save the patient. Through the long experience of fifty years, Dr. Thomson thinks he has discovered those medicines and that mode of practice, which will accomplish this object. He has tried them on the most hopeless cases, and still found them effectual. Indeed, such was the nature of his trials and difficulties, that he was only called in to the aid of the patient, when given over to death by the other physicians. The progress of his skill was therefore *tested* by a succession of the most desperate and deadly maladies. If it be objected to his system, that the four elements composing the human body, are not a correct enumeration of primary substances, I would reply, that it is the most simple, obvious and ancient distribution of the primary elements. It was Aristotle's division, and that of many other celebrated philosophers. Indeed, it is not long since the physiologists and chemists began to add to the number of primary elements. From 7 to 9 and 46, they have summed up the number at different times; but they are not now sure whether this last number should be enlarged or diminished. Indeed, they confess that the real, simple, elementary principles of matter, will never be discovered. The natural division of Thomson answers all the purposes of his system, and the operations of the healing art. The assertion, that *heat* is *life*, is at least, as philosophical as the affirmation of Dr. Rush, that *motion, heat, sensation* and *thought*, when united, compose perfect life. His cause of disease, being ascribed to obstruction, seems to amount to the same as Dr. Rush's morbid excitement; and that *cold* is *death*, is about equal to the extinguished excitability of Dr. Brown. The conclusion of the whole matter is, that Dr. Brown perceived that the systems of medicine were too complicated, and therefore, uncertain and false in many of their principles. He by a close attention to facts in his own case, discovered a method of curing disease, at once simple and comprehensive, extending to all cases. Dr. Rush understood well, the value of his mode of reasoning, and though he has added sensibility to the system, he has not much improved it. Brown is more philosophical than Rush, for he gives the principle of life merely a name, which serves his purpose—excitability, without pretending to say what it is, whether a substance or a quality of substance. He says it is somewhat which he cannot pretend to explain. And this is surely better than to make life the mere effect of the united action of organization and stimuli. Dr. Thompson might only intend, like Dr. Brown, to express the phrase, *heat is life*, the unknown *somewhat* which he could not describe, and that *cold is death*, he might only mean the effect of death. *Cold* is generally considered a negative term, to express the absence of heat. Dr. Raye says, it is the effect of a condensed or cold ether, from which heat has been expelled. Plato calls it a fluid of gross particles, which presses upon and stops the pores of the body, excluding heat. Life is a metaphysical subject and cannot be investigated by the laws of physics. Dr. Thomson in calling heat life, has more philosophy on his side than people imagine. Light, heat and fire, are only the same substance in different states or conditions, and acting in a different manner. They are all signified by the same word in Hebrew, Greek, and Latin. "Some of the ancients affirmed, that light gave an organization, sensation and thought, to the primitive chaos, and is the pabulum of all living things. It is the purest, brightest and most beautiful of all that we behold, of the worlds of the creation." Plato, in Timæus, asserts that fire and heat beget and govern all things. He accounts for the animal functions, from air and fire joined, acting through the whole body; fire expanding within and fire compressing without. The Abbe le Pluche says there are but three fluids, which by their continued activity cause all motion; these are, fire, light, air, and they are the breath of life. These active agents, the heathen held to be intelligent, and the gods that govern the whole universe. Fire and air, they called the active moving powers, and earth and water the passive elements. These opinions correspond with Dr. Thomson, who thinks with them, that the circulation of the blood is caused by the expanding power of heat within, and the compression of air without. The activity he has assigned to them, agrees with the most reputed systems of ancient philosophy. An egg cannot hatch, says Dr. Ray, without air and heat. They have absolute dominion over all things. The circulation of the blood is from internal heat, and the external air pressing into the lungs, they serve as a pump to draw the blood from the heart, and the air keeps this pump in motion. The air is to the body, what the weight is to the clock, and the heart with its valves as a pendulum to regulate its motions. Dr. Brown, by reducing all diseases into two classes, *sthenic* and *asthenic*, ascertained, at once, to which class the complaint belonged, and proceeded accordingly to remove the debility. Dr. Rush, by making disease a unit, caused by morbid excitement, and its *state* or condition, to be ascertained by the pulse, would decide with equal facility, on the mode of cure; equalize the excitement. Dr. Thompson, by making disease the general effect of one general cause, *obstruction*, has fixed his remedy, like the others. Remove the *obstruction*, is his cure. Remove the *debility*, was Dr. Brown's cure. Remove the *morbid excitement*, was Dr. Rush's cure; and all diffusive stimulants. The *debility* was removed by diffusive stimulants; the *morbid excitement*, by diffusive stimulants; the *obstruction*, by diffusive stimulants. These gentlemen, though they have travelled in far diverging paths, yet at the end of their journey, they have met almost in a single point. They began their career together, about the end of the last century, and before the

middle of the present, it is impossible to say what may be the estimation in which they may be held by the world, or cures effected by their discoveries.

INFLUENCE OF SOLAR ECLIPSES ON ANIMALS.—M. Arago, in his account to the Academy of Sciences of the solar eclipse of 8th July last, stated that he had often heard accounts of birds dying from the mere influence of an eclipse of the sun, but could scarcely credit the statement, as they could only die from fear, and the discharge of a gun ought to frighten them much more, and yet it is certain that it does not kill them, unless they are actually hit. One of M. Arago's friends made the following experiment: He placed five linnets in a cage, that were lively and active, and fed up to the moment of the eclipse; when the eclipse had terminated, three of them were dead.

A dog was kept fasting from morning; immediately before the eclipse he was offered food and fell on it greedily; but when the dusk commenced, he suddenly ceased eating.

The horned cattle in the fields seemed affected with a kind of vague terror; during the eclipse they lay down in a circle, their heads being arranged towards the circumference, as if to face a common danger.

The darkness influenced even the smallest animals. M. Fraisse observed a number of mice which were running briskly, become suddenly still when the eclipse began.

PLANTS GROWING IN ANIMALS.

Numerous microscopic researches lately made by Dr. Bennet, have led to some important discoveries in pathetology. That gentlemen in a communication read at the last meeting of the Royal Society, has shown that several diseases have long been known to physicians, who, however, have not been acquainted with their real nature. Dr. Bennet has discovered plants growing in the lungs, which are sometimes expectorated by individuals laboring under consumption. Other vegetations have been found in the inferior animals, as in birds, reptiles, fishes, insects and mollusca. The facts now announced, are likely to cause important changes with regard to the nature and treatment of certain disorders.

TRIUMPH OF PATHETISM.—The accredited agent by which spirit acts upon matter, the mind upon the body,—the immediate source of life, animal and vegetable,—the means by which one portion of matter attracts or repels another,—the basis of all medicinal remedies, the cause of disease and death,—this surely is a subject worthy of our most ardent study. Shall we then any longer be deterred from openly espousing the cause, and devotedly applying ourselves to the study, of Pathetism, by the scoffs and sneers of those, who, having eyes will not see, and ears will not hear, the truth, simply because it transcends *their* attainments, or apparently contradicts their adopted theories? Let those who will hug their ignorance, and choose darkness rather than light: we hope to see, at no distant day, the science of Pathetism every where received and cherished, its claims acknowledged, and its wonderful teachings understood and appreciated. We hope to see Pathetic Societies formed here and elsewhere, to concentrate efforts, collect facts, procure books and other means of information, and regulate the course of public instruction.

As the best, readiest, and cheapest means of information at present attainable, we beg leave again to recommend the MAGNET, a monthly magazine published in the city of New York by the Rev. La Roy Sunderland. The public are beginning to appreciate their obligations to this bold pioneer in the cause of science and truth against ignorance, error and incredulity. To the Magnet is justly attributable, in a great measure, the wonderful change in public opinion on this subject, within the last year. To the Magnet do we owe no small share of the pleasure we enjoyed, and the knowledge imparted by means of the late lectures and experiments in our village. In spite of the ridicule and contempt so liberally showered upon it, and in spite of the sacrifices attending a scanty subscription list, the Magnet has pursued the even tenor of its way, embodying facts, and publishing well conducted experiments and well attested cures, till prejudice is beginning to give way and the public mind becoming disposed to acknowledge its claims. Let then we repeat, every one who has not already done so, immediately procure the Magnet, commencing back if possible, with the first number. He will find the numbers already published (10) contain a vast amount of interesting facts, communications from learned and practising physicians, and essays on electricity, magnetism and physical temperament from foreign works never before published in this country, at least in so cheap a form.—*Skaneateles Democrat.*

MEAT EATERS.—The consumption of butchers' meat in Paris during the month of April last amounted to 6,417 oxen, 1,410 cows, 6,631 calves, and 38,072 sheep. As compared with the consumption of the corresponding month in 1841, there was an increase, in 1842, of 359 oxen, 521 calves, and 1,631 sheep, and a diminution of 488 cows.

BLEEDING AT THE NOSE.—A communication on Nasal Hemorrhage was lately read at the Academy of Sciences at Paris. The author, M. Negrier, announces, that bleeding from the nose may be almost instantaneously checked by raising the arm on the same side as that of the nostril from which the blood flows. It is well known that such hemorrhages are often formidable, and sometimes fatal. This as the Washington Ssectator remarks, is important, if true.

FISH WITHOUT EYES.—Mr. J. F. Hanks in describing the Mammoth Cave in Edmonson county, Ky. mentions the fact that many fishes *without eyes*, have been taken in the river Styx, which runs through the cave. "We were not fortunate enough to see one," says he, "as none had been caught for several weeks. I conversed with Dr. Porter, of Bowling Green, on the subject, who informed me that he had one of them in his possession; that he had dissected the head, and examined every part of it with a microscope, and no trace of any organs of vision could be detected. They are called *blind fish*, are about four or five inches long, and are white and transparent. The bones, circulation, &c. are readily discerned by the naked eye, through their whole substance." Doubt not, reader! for "there are more wonders, in heaven and earth, than were ever dreamed of in your philosophy"—*Nashville Whig.*

A friend of ours has often visited the Mammoth Cave, and says that the fish found in it are without eyes, as above described. Eyes would be of no use, if they had them; it being total darkness.—*Journal of Commerce.*

CURE FOR HYDROPHOBIA.—At Udinas, in Friule, a man was cured of hydrophobia by some draughts of vinegar, given him by mistake. A physician at Padua tried the same remedy upon a patient, giving him a pound of vinegar in the morning, another at noon, and a third at sunset: the man was perfectly cured.

THE

MAGNET.

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LIFE.

For the Magnet.

ANIMAL LIFE.

BY DAVID PORTER, M.D.

Sir,—If you understood that by the term life, I do not mean to designate caloric, electricity, magnetism, or any other *substance*, but simply operation or function, I cannot see how your difficulty necessarily arises *in limine*. I cannot, indeed, admit, that in death "the muscles, nerves, tissues, and every part, remain as before;" but will readily acknowledge, that the change may not be appreciable by those unacquainted with the nature of the functions which I would name life. When a watch stops, if its owner is not acquainted with the nature of its internal operations, he may not be able to detect the cause, or discover any change whatever; and yet, a proper artificer may see it in an instant. He may probably find that its operations are merely suspended by some clog, or mal-position of parts, or some fracture or other lesion; or, perhaps, it may even be worn out, without any very striking variation of form or arrangement. Now, if all this might occur in relation to a watch, how much more readily may the functions of that vastly more ingenious and complicated galvanic machine, an animal body, be suspended or destroyed by a thousand causes, imperceptible to common, or even any human vision. When merely suspended, as in the watch, they may be restored; and, in all cases, it is plain, that in proportion as we understand the healthy functions, we shall be better qualified to restore them when lost. A proper answer to your request, then, you will perceive, must embrace the whole round of medical science; and on this subject I will endeavour to meet your wishes, as well as those of my reverend friend J. and others, as soon as I have made such preliminary physiological explanations as may be necessary in order to understand, in some degree, the healthy functions. In my last, I promised to give, in explanation of my views, a few additional statements regarding inverse sympathies in my present letter. To this, then, I must proceed.

No subject, pertaining to physiology, seems to have received less attention, or to have been more vaguely treated of, than inverse sympathies. This is certainly remarkable, in an age of searching scrutiny on most philosophical subjects. The science of nature is rapidly advancing to maturity. The properties of matter are already known, the laws of nature arising from them are all more or less clearly traced, and the great first principles of natural philosophy are in the way of speedy development.

The same cannot, indeed, be said of the science of mind, but enough is known to show, that mind and matter are totally different, endowed with different properties, and regulated by different laws, and that something corresponding to mind under the name of instinct, extends through all grades of organised beings, from those mammalia immediately below man down to the meanest vegetable. These opposite entities of matter on the one hand, and mind or instinct on the other, are capable, under certain circumstances, of uniting, and exciting reciprocal influences over each other. Their union depends on life. Thus far all will, perhaps, agree. That life, or a living state, is indispensable to the union of matter with instinct or mind, will be admitted by all. But the question, *what is life*, will still remain unanswered. Is it a separate entity endowed with peculiar properties, or simply a display of laws emanating from the common properties of matter suitably arranged? Now, it must be borne in mind, that the former view cannot be received until the latter is shown to be impossible; or, in other words, it would be manifestly unphilosophical to assign a new and unknown cause to phenomena which may be produced by common and well known causes. Possibilities in these cases may be assumed as, at least, probabilities. I shall accordingly, at present, merely attempt to show that inverse sympathies may be traced to the well-known properties of matter, under guidance of anatomical structure, and that life, or a state of life, is a mere effect of order.

Let it be recollected, that our theory contemplates the nervous system as an electrical machine; or, rather, a galvanic battery. The brain and ganglia each consists of two substances for generating power, and the nerves, of bundles of insulated conducting fibres. We assume, for the present, that the brain is constantly negative towards the minor ganglionic system, and as occasion requires, in obedience to the will, towards the voluntary nerves, or in other words receiving electricity from them; and positive towards the eighth pair. We, then, have positive and negative powers displayed in the living body according to the arrangements of the system. Or, adopting, as we do, the Franklinian theory of electricity, we have one set of nerves for receiving and another for discharging electricity.

Besides transmitting sensations, the negative nerves

terminate on muscular fibres and lymphatic vessels, to produce muscular contraction and absorption of positive or alkaline particles. The pneumogastric, on the other hand, besides its peculiar sensations, terminates in the ultimate cells of the lungs, and in the stomach to charge the lymph of the blood in the former, and the food in the latter. With regard to the latter we think it may be demonstrated, that what is called the gastric juice itself, is neither more nor less than a small remnant of food whose globules are highly charged with positive electricity, and of course repel each other. And that the coagulation of the lymph of the blood after it is drawn, depends on a discharge of electricity, we should think could not escape any unprejudiced observer. It coagulates more rapidly in proportion to the surrounding heat, or as it is agitated, or flows in small or slow streams, or into shallow or metallic vessels, or into a vacuum, or in any other way in which the escape of electricity is facilitated. It coagulates, also, more rapidly in the ratio of its specific gravity, or in other words in proportion to its amount of coagulating lymph and consequent deficiency of electricity in a given quantity. In diminished excitement, also, especially if it amounts to syncope, a rapid coagulation takes place.

On the other hand, blood coagulates slowly when the system has been much excited, or, according to my theory, when its globules are highly charged, or when it is caught in glass vessels, particularly if it is suffered to flow rapidly into a glass bottle, and well stopped with some non-conductor.

On the inner surface of the right auricle, the positive nerves may attract through the veins to the heart, water and other oxygenous and negative substances, which are thus taken up by what is called venous absorption. It will be recollected, that the conflicting opinions of authors on the subject of absorption, are reconciled to some extent by my theory. Majendie and his coadjutors might be right in supposing the qualities of upas, nux vomica, rhubarb, alcohol, acids, and other things which are imparted to water, reach the circulation by veins; while Hunter and his friends might be equally right so far as regards albumen, lymph, indigo, musk, various kinds of virus, &c. In connexion with negative nerves, too, I may here state, that the positives may, instead of contraction, produce elongation of muscular fibres, as is most evident in the power of elongating the linguales muscles of the tongue.

If this theory is correct, inverse sympathies are easily explained. As the whole amount of transmitted electricity must depend on the aggregate power of the brain and ganglia, the different nerves of the positive and negative sides of the system respectively must mutually limit and control the functions of each other, and produce inverse sympathies corresponding with the anatomical arrangements of the ganglia. The different negative nerves, for example, will be thus associated, not only as regards muscular contraction, whether voluntary or involuntary, but as regards lymphatic absorption; because both are sources of positive electricity. A similar remark, mutatis mutandis, may be applied to the system of positive nerves. Let us suppose the opposite poles of a galvanic pile to be united by several wires. Now it is evident, that as the power of the pile is limited, the several wires must, in like manner, limit each other in the business of transmission. That is, some can only increase by diminishing others, and vice versa. This is precisely what we believe takes place in the living body. On this law is founded the efficiency of all counter-irritation, so efficacious in the hands of the physician; and without it, an inflammation of the pleura would no more yield to a blister on the chest, than a fire on one side of a wall would be extinguished by another fire on the opposite side. This law extends to the functions of the mind, as well as those of the body. For this reason great exertions of either body or mind suspend lymphatic absorption, till lymphatic accumulations acquire power in turn to suspend those exertions in sleep and rest. But without rendering my epistle too long, I cannot descend to particulars at present. To sum up the whole, we must regard the brain as a great ganglion giving equal amounts of galvanic power to its opposite positive and negative nerves. Each set of nerves, accordingly, exert among themselves, respectively, those reciprocal influences called inverse sympathies. Minor ganglia, by associating together groups of negatives, at once establish among them in succession, more immediate inverse sympathies, and give them greater relative power accordingly, as the field for displaying it is less, or their functions more important. Without an opthalmic ganglion the feeble stimulus of light on the ciliary branches of the fifth pair could not suspend the power of those from the third, so as by relaxing the iris to suffer it to dilate, and thereby contract the pupil. The nerves of smell and taste, which most probably are the lateral nasal and vidian or chorda tympani, could not have had sufficient relative power without a spheno-palatine ganglion; nor could those of the salivary glands without a maxillary ganglion. The gentle vibrations of our atmosphere must have been still more ineffectual in causing us, by means of the portio dura, to arouse the tensor muscles of the tympanum, without an auricular ganglion. The necessity for a cardiac, and great semi-lunar ganglion, for the same reasons, will appear at once.

Rostraver, Westmoreland Co., Pa.;
March 9, 1843.

ELECTRICITY.

For the Magnet.

INTERESTING EXPERIMENTS.

Sir,—Having discovered, as I supposed, that many, if not all the phenomena in Pathetism, were dependent on electricity, I was led to try some experiments in the latter, the further to detect their identity. Herein I send you the results.

From some experiments in Pathetism, it appeared to me that the *negative* electricity sometimes passed to the *positive*, and not the *positive* to the *negative*, as is said to be the case in the discharge of the Leyden jar. To ascertain this fact with regard to electricity, I took four pieces of writing paper, wrapped them around and tied them to the outside of a Leyden jar. I next charged the inside, as usual, from a machine, and made the connexion between the paper and the knob of the jar, which immediately discharged itself, as was to be expected; and on examining the papers they were found to be punctured, and all burned on the side from the jar, as though electricity had left the negative side, passed through the papers and conducting rod, to the positive or inside of the jar. I next fixed the papers on the knob of the jar, and repeated the experiment with the same result, the papers being burned on the sides next the knob, as though electricity still passed from the negative to the positive side.

I next discharged the jar by means of two discharging rods, placing the papers between them, their other ends being connected, the one with the positive and the other with the negative side of the jar. In this case the papers were punctured, not as in the two former experiments, but that half of them next to the negative were burned on that side; the other

half were burned on the side next the positive, as though the electricity started from the middle of the papers, and went both ways to the positive and to the negative.

ELECTRICAL ATTRACTION.

Two substances similarly electrified repel each other; but if one is positively and the other negatively electrified, they attract each other; or, query: does the positive only attract the negative, as would appear by the two first experiments above related. Negative electricity may be conducted from the cushion of an electrical machine to a person on an insulated stool: why not, then, from the negative side of one jar to either side of the other? To ascertain this, I connected the outsides *only* of two jars, A and B, both being insulated. I then charged the inside of A positively; broke the connexion between them, and made another between the inside of A and the outside of B; but *there was no discharge.* Indeed, I can contrive no way to draw the negative fluid from one side of a jar, the other side being positive, without a communication between the two sides.—But whenever a jar is charged, the positive fluid may be conducted off by any of the good conductors, without a direct communication being made between the two sides. Is it a fact, then, that the positive fluid attracts the negative, yet is not *attracted by* it? If so, whenever a jar is discharged the negative fluid should rush to the positive, to restore the equilibrium, or rather to *neutralize* the positive side. The following experiment, among many others, claims our attention.

I charged the insides of two jars with the positive fluid: their outsides of course were negative. I then applied the knob of the jar A to the outside of the jar B—this was bringing a positive and negative surface in contact; but the discharge was not as usual, when both sides of the same jar are connected, by a single spark and report, but by a kind of gradual and reluctant discharge, attended by a multitude of faint sparks and feeble reports. I am aware, that this does not prove or disprove a mutual attraction between the two electricities; but it proves, in my opinion, that the negative fluid is held to the outside of the jar by the attraction of the positive within; or, perhaps, by a mutual attraction between them. So when A's positive side was connected to B's negative—B's negative fluid was equally attracted to the inside of both jars, and, consequently, could not pass to either. Neither did this slow discharge from the inside of A, change the state of the outside of B; for B's electrometer all the while showed no diminution of B's positive fluid within; and on making a communication, immediately, between the two sides of B, a regular discharge ensued.

But what became of the positive fluid that escaped from the inside of A? that jar being discharged by the slow process above described, it was not found on the outside of B—it did not escape through the atmosphere, being conveyed through a wire passed through a glass tube. The only rational answer to the above question, would appear to be this:—the positive fluid in A did not pass off at all, but having a great attraction for the negative fluid, drew it slowly from the outside, or negative, of B; while the positive side of B, having an equal attraction for negative, drew it from the atmosphere as fast as A's positive drew it from B's negative side. This would keep the jar B in the same state it would have been in had it not been connected at all with it; which was found to be the case, as indicated by its electrometer before alluded to.

If any one should doubt that electricity has such an attraction through glass without passing through it, let him repeat the following experiment. Take a wire eighteen inches in length, suspend it by a silk thread so as to be in equilibrium, like a common scale beam; charge the inside of a jar, and hold a pane of glass under one end of the suspended wire, and bring the knob of the jar under the same end, the glass being between them. The end of the wire will be drawn down several inches. Remove the glass, and touch the end of the wire with the knob of the jar; bring back the glass, apply the knob as before, and the wire is as much repelled. Remove the glass again, and touch the wire to the outside of the jar, and apply the glass and knob as before, and it is again attracted; and this may be repeated with the same results until the jar is exhausted. Thus, it appears, that when the knob and wire are in opposite states they attract, and when in the same state they repel, notwithstanding the interposition of a non-conductor.

I am aware of the uncertainty that must attend conclusions drawn from this science, by any new experiments of this kind; and also, that some of the above experiments are not new. But I cannot reconcile them to the commonly received opinion, that the positive electricity *always* passes to the negative, neither can I believe that the outside of the jar is in its natural state, and is said to be negative only in relation to the inside, as some writers assert. I am well aware, too, that experiments in galvanism will, by some, be referred to, to prove the current of this extremely attenuated fluid.

Indeed, I do not know that the above experiments will much interest your numerous readers; but if the supposed facts above alluded to could be satisfactorily *proved* or *disproved*, in either case we should be able to establish other facts in the science of Pathetology, of no ordinary interest. And for this purpose alone I have given my attention to it, hoping that others, who have more time and talents than the writer, would devote themselves to it, and report the facts as they find them, through "The Magnet," or otherwise, not only for the gratification of the writer, but for the advancement of a science just now beginning to present itself to our consideration, like a diamond of the first water, before whose superior brilliancy all others fade into obscurity, as stars before the splendid orb of day.

Yours sincerely,

ZENAS CAMPBELL.

Great Bend, Pa., Feb. 17, 1843.

For the Magnet.

THEORY.

Dear Sir,—Since I entertained the belief of Pathetism, I have imagined theory upon theory to explain how, and in what way, the effects are produced by the operator upon the subject; and I will now give the results of my imaginings, and I flatter myself that they are worth something.

I believe there are two fluids used as agents by the Great Creator in the construction of his universe—that these two exist in every thing: they are Electricity and Magnetism. Electricity the animating principle, magnetism the opposite.

I believe that when a subject is pathetised, the electric fluid is exhausted or drawn out by the will of the operator, and nothing is left in the subject but the magnetic fluid.

This explains the absence of pain in the subject, when his own body is cut or pricked, there being nothing but magnetism or absence of feeling; and also when the operator is hurt—the subject feels it, also, as his principle of sensation (his electricity) is in the magnetiser. Their two existences are identi-

cal, and the subject for the time is capable of the same emotions of pain or pleasure of the operator. By the process of awakening the electric fluid is restored to the subject; and if the subject be weak by sickness, and is deficient in electricity, he will not only get back his own electric fluid, but, also, take from the operator, and this will account for the benefits resulting to patients from being thrown into the state of somnipathy; and, also, the weakness of the operator after operating. Damp air is a bad conductor of electricity—dry air the reverse: that is why it is harder in damp weather to operate. Health, mentally and physically, depends upon these two fluids being properly balanced. They may, or may not, be equal in quantity, but they must be contained in the body in proper proportion. There may be more magnetism or more electricity, I cannot say which; but be that as it may, they must be properly balanced.

Pain is caused by a superabundance of electricity in the part, and weakness by the absence of a sufficient quantity, or a superabundance of magnetism; and when pain is to be relieved, it can be done in many cases by moving the hand over the part affected, and drawing out the superabundant electric fluid. When the pain is gone, stop; for if the operator continues, he produces a feeling of numbness in the part, which I presume is caused by a superabundance of magnetism.

There is more electricity in the young than in the old; and therefore, they have more life and animation than the aged. I think the old, as well as the *weak* young, would be benefitted by being filled with electricity from an electric machine; weakness, as I have said before, being caused by an absence of a sufficient quantity of electricity.

Will my theory explain clairvoyance? I think it will.

When the subject's body is exhausted of its electricity, the electric fluid in the air would naturally strive to force an entry. Well, let it, and we can give direction to it. We know, that if we have a rod, a good conductor of electricity, a shock at one end is felt as soon as at another, no matter how long it may be. The brain of a person is a battery, and in the case of the subject, the magnetiser can direct the surrounding electric fluid to be conducted to the perceptive organs of the intellect of the subject, and fix there as a point one end of an electric line, and carry the other any where else he wills—the air being a good carrier of the fluid; and, by this, the subject can see all over the earth, travel through space, till the other end of the electric line shall reach, if the magnetiser wills it, the stars, the moon, and the sun, and be able to tell and explain all and every thing. There being no electricity in the subject when magnetised, the whole of that in the air seems to be at his disposal; and when willed by the operator, the subject can give direction to it, and with one end of the chain in his own (the subject's) brain, his battery, or his perceptive faculties, he can carry the other through every obstacle in a straight and immediate line, and see whatever the pathetiser wills, and that as quickly as a shock can be carried by a good conducting rod—instantaneously.

As to the other branch, called Cephology, I would explain it as follows. When you place your finger on an organ, it receives either a superabundance of electricity from yourself, or else you draw out the magnetic fluid and cause the electric to rush upon that spot from within his own system. In either case there is *too much electric fluid* there, and it produces monomania.

P. J. BECK.

Bridgeport, Conn., Feb. 19, 1843.

PATHETOLOGY.

For the Magnet.

THE PROGRESS OF TRUTH.

Upon taking a retrospective view of the past, the conviction is forced upon us, that we are now enacting the same career of hostility against new ideas and new truths, that we so strongly reprobrate in all past ages, and that, too, with no better reasons than our ancestors had for their opposition—merely because these truths do not agree with our preconceived ideas. A little reflection would show us, that the daily and hourly phenomena of our existence are to us almost all equally inexplicable, and that there lies only this difference between them: with the one, we are familiar—with the other, we must seek to become so.

Columbus was looked upon by his contemporaries as the greatest humbug of his day, and considered little better than a madman. Jenner, when toiling to introduce that great blessing, vaccination, was also a humbug: no ridicule was spared—even from the pulpit vaccination was denounced as an invention of Satan, and Jenner himself made the subject of vile caricatures. Copernicus, Galileo, and a host of others, were all the "humbugs" of their time. Verily, with such humbugs for company, the advocates and fearless defenders of pathetism need not shrink from their task.

There exists three distinct stages, as a good observer of human events has justly remarked, through which all new and important truths are fated to pass. First: "it is utterly false," "too ridiculous to deserve serious refutation," and "he who affirms it is either an impostor or a madman." Second stage: "there is something in it," "'tis true,"—"*but*—it is dangerous to morals," "contrary to and subversive of all religion." Third and last stage: when all deny ever having doubted it, because it was self-evident, and none but fools could doubt. If we read and took more interest in the biography of those great minds, whose struggles and sacrifices in support of truth have so great a claim to our warmest gratitude, we should learn modesty, at least, if nothing else; and being much in need of that quality, our gain would already be very great. We would then hesitate to pronounce so hastily upon nature's laws, and say, "thus far shalt thou go and no farther." What, we might ask, in the present state of our knowledge, do we know of the connexion of spirit, mind, and matter? If any knowledge of it should ever be unveiled to man, which now seems even probable, will it not be new, and, because new, must it necessarily be false? Strange, that the past should not make us more cautious and wise at the present! A little reasoning shows us, almost to a demonstration, that, in our turn, we shall be looked upon with the same pity for our rejection and persecution of truth, with which we regard her persecutors in days gone by—days which in all the plenitude of assumed wisdom we pronounce days of ignorance. To prove this, let us make a little promenade into futurity, no further than fifty years ahead, and suppose (which no doubt will be the case), that arts, sciences, inventions, and discoveries, continue to advance in the same ratio that they have for the last fifty years past: shall we not plainly see, that the days of ignorance will belong to us of the present age?

Theories, when given merely to be tested, and not as positive truths, can do no injury; for, if not supported by facts and experiments, they must fall; at the same time, they often lead to a more careful observation of certain facts.

Is not, perhaps, the perception, developed by the

invisible agent called pathetism, the spirit or soul, which, for the time that the physical organs continue in trance, is, as it were, released from its confining limits, and thereby enabled to act with greatly increased powers, for sight, hearing, feeling, perception, seem to most somnipathists a unit; they appear rather to know than to see. In what manner this spirit can be taking cognizance of objects at a distance, while it is still in so close connexion with the body as to enable it to make use of the organs of speech, and that, too, when all the avenues of perception are closed as if in death, remains as yet one of nature's many mysteries that we have not unravelled.

A contributor to your journal mentions having made perfect magnets of some needles placed upon an inverted glass, by the usual method of pathetising. We can also attest to the truth of this interesting fact, having more than three years ago pathetised two pieces of steel, which have remained good magnets ever since, although never afterwards retouched, or brought in contact with any other magnet.

The best mode of commencing an investigation of this science, for science we may fearlessly call it, is to read, attentively, the best writers upon it. True, our library is small: we are far behind the Germans and French, who can boast of a hundred volumes; but what we have, both originally in English and by translation, is all very good; and add to them this valuable periodical, the Magnet, and we already have a school, not to be neglected. The old adage of "seeing is believing," does not apply to this subject, the phenomena being so startling and transcendantly wonderful, that it requires us to become familiarised by degrees, and then we also know better what to expect when we see it experimentally. Otherwise, many things appear to us contradictory which belong to invariable laws, and we are more startled and puzzled than enlightened. In fact, the same result follows as in the case of two travellers, the one educated, the other not so: they both *look*, but only one of them really sees. M. H.

Washington, D.C., March 19, 1843.

PATHETISM.

Probably most of our readers have heard of the Rev. La Roy Sunderland, and his experiments in Human Physiology, during a year or two past, which have so much interested the scientific world. Having, ourselves been favored by Mr. Sunderland, with an opportunity of witnessing some of his experiments, and believing that a brief account of what we have seen would interest some of our readers, we have concluded to give the following a place in our columns. But, in doing so, we must beg our readers to notice:—

1. That the following, has nothing to do, *pro* or *con*, with any matter of religious faith. It is a mere detail of *physiological* facts to be accounted for or explained as the reader may choose.

2. We give no opinion, of the details, except to express our entire confidence in the honesty and integrity of Mr. Sunderland, whom we know, and also in the uprightness of the subjects on whom the following experiments were performed. We cannot suppose it possible, that there could have been any collusion between the operator and his patients; not only from our knowledge of Mr. Sunderland, but also, because, a number of our first physicians were present, at the time, and men abundantly able to detect the fraud, had any existed.

3. Though the following is not given as bearing in any way upon any feature of the Protestant faith, yet, there is one point of view in which some of Mr. Sunderland's experiments assume an aspect of great importance. We allude to the fact, that he assumes to be able to produce a state of *ecstacy* or *trance*, which is made so much account of by the Papists, as a state purely MIRACULOUS. Indeed, the Papists of this city have just published a book, purporting to give an account of two females in Austria who have been in what they call a *miraculous* state of *ecstacy*, for years, and one of them the account states has not eaten, nor drunk, nor slept for more than eight years! This book Mr. Sunderland has read, and he gives it as his opinion, that so far as there may have been anything like *trance* or *ecstacy* in the cases detailed by the Earl of Shrewsbury, they are resolvable into the physical laws of the system, and, which produce those states, in persons of a peculiar temperament; and this Mr. Sunderland infers from the fact, that he has, times without number, produced this state, by what he calls *pathetism*, or sympathy.

Though he uses the term *pathetism*, to signify more than is usually meant by sympathy; he applies it to signify *susceptibility*, to *passion*, *emotion* or *feeling*, of any kind, produced by manipulation, and that *agency*, also, by which any effects of this kind are produced on the mind, or physical system. But to the experiments. Wednesday, Feb. 15, 1843, we repaired to Mr. Sunderland's office, 73 Chambers street, New York, where we found a few friends together with a number of physicians, assembled to witness the results described below.

1. The first experiment was on an intelligent Christian lady of about twenty six. Mr. Sunderland stood behind her chair, and placing one finger on each side of her head, her eyes closed in a few minutes; and to all appearance, she was in a sound sleep, with this exception, that she seemed partially conscious of what was said in her presence, but she manifested great unwillingness to talk. She described her state, as one of complete *abstraction*, her mind, she said, seemed elevated far above the body, and the things of this world. Her countenance assumed a most expressive and heavenly appearance, and she declared that her perceptions of the spiritual world, and the happiness of its inhabitants was as real as any thing she had ever seen with her eyes.

This state Mr. Sunderland declared, was, as far as he could judge, *identical* with that called *Trance* or *Ecstacy*, having, as he said, seen and examined, many cases, of this state, into which persons of a peculiar temperament have been known to fall, especially under religious excitement.

2. The next experiment was on another lady present, whom he put into what he called a state of *somnipathy*, usually denominated somnambulism. As far as we could perceive, after Mr. Sunderland had merely placed his hands on her head, for a few moments, she could neither hear, nor see, nor indeed, use any of the organs of sense in the usual way. The effects on the muscles were most astonishing. Her left hand was raised by Mr. S. and placed on her head; our attempts to remove it were utterly unavailing, without doing manifest violence to the system. To move that arm, would move the whole body. One of the physicians present, signified, (privately) to Mr. Sunderland, that he should cause the patient to relax that arm, merely by an effort of his *will;* and without touching her, or anything signified audibly, the arm fell into the lap, as if deprived of life. The right arm was then stretched out horizontally, and became so rigid that it appeared to be literally frozen. After remaining in that position, as before, Mr. S. was requested to cause it to be relaxed by his will; and, in a moment, it became perfectly relaxed again.

Mr. S. was requested to cause her, by his will, to rise up, and walk to the other side of the room; and, in a moment or two, she arose, and advanced slowly, till she was ordered again to take her seat.

These effects of the will over the nervous system of another would seem to be quite simple according to Mr Sunderland's theory, which our readers will find explained in a work, called "The Magnet," of which he is the editor, published at 138 Fulton Street, N. Y.

3. Mr. Sunderland now proposed to show us some demonstrations in what he calls, *Cephology*, showing the *susceptibilities* and *influences* of the human brain; and he applies this term to this class of experiments, merely because they are performed by operating on the face, and *head*.

Placing two of his fingers on a portion of her head, above, and outside of the eyes, the patient commenced *singing;* and extending two other fingers to a portion still higher, she mingled her singing with laughter; and, after singing some light air, and laughing, for some minutes, Mr. S. (keeping his fingers on the organs of tune, and removing them from mirth,) placed another finger on the top of the head, when the patient changed her tune to Old Hundred, and appeared quite solemn; and on changing his fingers, back, and forth, in the above manner, the patient also changed her tones, features, and music, from the lively to the grave, a number of times.

On applying his fingers to other portions of the head, the patient manifested various passions and emotions, such as anger, ill-nature, devotion, imitation, &c. &c.

4. There were, also, two gentlemen present on which various experiments were performed, such as rendering the arms, mouth, and other muscles perfectly rigid, so much so, that the patients could not control them at all; and demonstrating the existence of certain laws which govern the nervous system, which seem not to have been so well understood heretofore.

Mr. Sunderland thinks this *susceptibility*, and the *agency*, by which he produces these results, (and which he calls *Pathetism*), are destined to throw great light on the states of mind called *Insanity and Somnambulism*, and the various fanatical delusions which have done so much mischief in the world.—*American Millenarian.*

MAGNETISM.

MAGNETISM.

BY RICHARD ADAMS LOCKE.

But while the magnetic poles are thus performing their revolution latitudinarily, they are also ascending spirally to a higher latitude, and the angle of their ascent is the angle of the line of no-variation with the earth's axis, and is probably the cause of it. The *rate* of their ascent is exactly the ascent of the earth's axis, or of the diminution of the obliquity of the ecliptic so well known to astronomers, although they do not yet know that the one is the cause of the other. This, then, brings us to the consideration of that grand periodical mutation in the position of the earth's axis toward the sun, which has occasioned the most momentous changes that have occured in the history of our planet, and in the condition of its inhabitants and productions through vast cycles of time. This revolution of the earth's axis, though well known to the ancients, and the great theme of of their poets and philosophers—depicted in the spiral circles of their temples, and taught to the initiated in their noble orreries and zodiacs—has been lost to modern science, or at least, since the wholly gratutious hypothesis of the celebrated Laplace concerning the future perturbing influence of the planets, has been limited to an oscillatory motion, upward and downward of between two and three degrees. Granting him his premises, the calculations of Laplace might be conclusive, but disputing his first assumption they would fall to the ground, and the united testimony of antiquity and geology would be established. The mathematical evidence which I might offer in corroboration, is ill-adapted to a popular lecture which can embrace only general views and arguments; but I hesitate not to say, that that higher order of proof, derived from the forces of the sun, appears to me to be clear, conclusive, and unanswerable, and must eventually supersede the modern hypothesis. All the observations of the obiquity of the ecliptic that have reached us from ancient times—and they extend very far beyond the Christian era—show the earth's axis to be ascending. "The oldest recorded observation of the ecliptic," says Dr. Sherwood, "that has reached us, is that given to Alexander by Berosus, the astronomer of Babylon, who told him, and the philosophers who accompanied him on his expedition to Babylon, that it was then 430,000 years since the earth's axis was in the plane of the ecliptic, and the obliquity 90°; and he showed them astronomical observations extending back to that time, which with many thousand very ancient documents and monuments, are said to have been destroyed by the crusades of the Therapeutæ. The next oldest recorded observation which is that of the Chinese, about which there is no dispute, when the obliquity was 24°, and which carries us back to 3,456 years, since which time the magnetic poles have made five entire revolutions round the earth, and have advanced 68° 11′ 17″ into the sixth, and must, consequently, have advanced in a spiral manner, and at an angle with the parallels of the latitudes. The next observation is that of Pytheas, 330 years before Christ, who found it 23° 50′; and as it is now well known to be about 23° 58′, the arctic and antarctic circle must have advanced more than half a degree since the time of this observation. Different mathematicians have calculated the rate of the decrease of the obliquity of the ecliptic from 50″ to 58″ in a century, but I have adopted the secular or mean rate, used by the ancients, of 56″ 15‴, which gives an annual rate of 33‴ 45⁗, and there are good reasons for believing these to be the true mean rates."

I will now refer you to the diagram, in which the different positions of the Earth's axis toward the Sun and in sixteen periods of 144,000 years each, are exhibited. [This diagram was projected upon the pattern of a very ancient zodiac of sixteen divisions which still exists.] In the lowest and uppermost circles around the larger one, you will perceive the axis in the plane of the ecliptic, with pole presented toward the Sun, the North pole toward the Sun in the one, and the South pole in the other—the hemispheres being thus reversed to 1,152,000 years, or in half of the entire revolution of 2,304,000 years to the position again. In this situation of the Earth the magnetic poles, which are ever perpendicular to the plane of the ecliptic (the Earth moving under them, in reality,) and parellel to the axis of the Sun, were in the equator; the Sun instead of passing round the equator, moved annually upon the meridian of the axis of rotation, or from one pole of the axis to the other. So that the days and nights were then as long as the seasons, being each six months, one side of the earth being in darkness and frost, and the other in fierce sunshine alternately. I

leave your imaginations to depict the horrors of such an age, and of the dreadful commotions of the elements that prevailed. It was indeed the "age of horrors," or the "iron age," so frequently referred to by ancient poets and philosophers, which is also often alluded to in the Scriptures, and of which the Earth still retains the appalling scars, and from which we have gradually emerged. In that position of the Globe, the Sun rapidly passed over 180 degrees of latitude, in the time that it now passes 46° 56′, or from tropic to tropic, for the poles of the Earth *were* the tropics. A modern Geologist, (Prof. Agassis of Neuchatal,) has lately presented to the public a most impressive view of the awful condition of our World in this period, derived from many years' study of the Geology of the Alps and other countries, and a portion of it is published in the last number of the Eclectic Review (in this city,) to which I solicit your particular attention. His discription exactly accords with what must necessarily have existed from this position of the axis, and which could not, without a special miracle for the purpose, have arisen from any other cause, and it is not merely unphilosophical but fanatical to resort to a miracle for the explanation of phenomena for which we have natural causes. He states, as we know must have been the case, that the waters must then have prevailed over the greater part of the earth, leaving the region of the equator the most exempt, and been kept (except in that region) perpetually frozen, except such portion of the ice as would have been melted into rushing, frightful floods in the rapid course of the sun. The effects of the falling icebergs upon the surface of the rocks, and the transportation of immense masses of the latter to remote places, he has traced from observation; and his discoveries, will have great weight in restoring the ancient science, and in introducing a far more rational and liberal theory of Geology than is now adopted. It will be unnecessary to resort to the marvellous theory of the rise and depression of whole continents, by the action of the internal fires of the earth, since the rise and fall of the waters will answer the same purpose, account for the same results (except those purely volcanic, or belonging to the chrystaline period, of primitive rocks, when the earth was in a formative state,) and harmonize with the changes now observed to be in progress. Whether the land be rising and falling or not, the waters are, and that too in the latitudes and directions corresponding with the changing position of the earth's axis, so that geologists may adopt whichever class of causes they deem the least difficult or more probable. In this position of the globe, the race of man and all living things, both vegetable and animal, must have been at its minimum, in numbers, stature, and longevity; for such extremes as then existed must have been unfavorable to life, and the frigid or negative principle, which never produces any living thing, then chiefly predominated. In intellect as in stature, man would be in his most inferior stage, perhaps even more inferior to those specimens of the race which still exist in the frozen regions of the north. The poets (particularly *Ovid* in his sketch of the "Iron Age,") describes the moral and social condition of man as being as vicious and as wretched as his physical one; the ameliorating influences of arts, science, and knowledge gone, and a darkness of mind succeeding equal to that of his long winter nights.

But turn we now to a somewhat, though scarcely much improved state of things after the lapse of 144,000 years, when the axis had ascended 22° 30′, and the tropics were at this distance from the poles of the axis of rotation. The Magnetic poles were then at this distance from the Equator, and nearly where our tropics now are, so that there were then the arctic and antarctic circles, and our present circles of this name were nearly the tropics of that age. In another period of 144,000 years the axis ascended another 22°, 30′, or eighth portion of the circle, and was then an angle of 45°. The tropical circle had then advanced from the poles, and the arctic and antarctic circles from the equator, until they coincided, and were both equidistant from the equator and the poles. This must have been an age of the world of great interest and improvements, though far inferior to that we now enjoy. There is much reason for supposing, from the evidence to be gathered from Dr. Stukely's curious and celebrated work on the ruins of Stonehenge and Aubury, that these marvelous and mysterious structures were erected in this age, for they are built at an angle of 45° with our present meridian, and their astronomical character, arising probably from their being devoted to the worship of the Sun, is so palpable as to be scarcely questionable. And there are many other ancient remains of solar temples, which appear to indicate the era of their erection by a similar rule. Indeed, the chief temple of Solomon, as well as those other temples which he erected when he openly became a Sun-worshipper, afford similar indications, and there are some curious reasons for thinking that the magnetic needle, though erroneously supposed to be quite a modern discovery, was used in the ancient mysteries in connexion with the art of architecture. The architects of ancient times were versed in astronomy, and every builder becoming initiated into the secret of his craft was deprived of iron and all other metals, lest, as it is said, it should affect those operations of that instrument which were among the subjects of his study; and we are all familiar with the tradition that no implement of iron was used in the erection of the great Jewish temple to which I have referred—a tradition, however, which may be rather symbolically than literally true.

The third division of the circle, brings us within that amount of the obliquity of the ecliptic in which the earth is now situated, and which may be regarded as the commencement of the "Golden Age" of the poets, the "Millennium" of the prophets, and the *Cali-yug*, or genial age, of the Hindoos. It is a remarkable and most striking fact, that adopting the rate of motion before mentioned, as the mean rate for the whole period of 2,304,000 years, the date of the commencement of this glorious period, upon which the ancients expatiated with such fervor, and the poets and prophets in such glowing numbers, is also the date of the Christian era. That the heathen world expected their golden age to begin about this period is evident from the 4th Eclogue of Virgil, which I regret I have not at hand to read to you, in which it is warmly portrayed in the prophecy of the Cumæon Sybil. She speaks of the birth of the illustrious boy, in whose reign the earth was to become a paradise of happiness and fertility, as the Hebrew prophets did; and the imagination of the writers of most, if not all, the enlightened heathen nations fondly dwelt upon this age as that which their astronomers predicted would be ushered in at that time. Yes, in 144,000 years from the date of the birth of Christ, allowing for the gradual decrease of our years from 365 days to 360, which the year will become, the axis of the earth will be perpendicular to the plane of the ecliptic; the magnetic and terrestial axes will then coincide, and, of course, the magnetic and the terrestrial equators. The magnetic vortices will crown the poles of the earth, and the magnetic and terrestrial meridians will everywhere coincide; the days and nights, instead of being six months

each, as they were in the age of horror, when the axis was parallel to the plane of the ecliptic, will each be of twelve hours; the sun will shine from pole to pole in every part of the Earth's annual orbit, perennial spring will load its valleys with fertility, clothe its hills with verdure, even to the tops of its mountains. The last memorials of the "iron age," or ice period, which still linger upon these summits and begird the frozen zone with thick-ribbed ice, and stupendous monuments of congelation which would seem to be imperishable, will melt away, and flowers and forests will take their place. Already have we seen animals which existed prior to the last frozen period, and probably the degenerate relics of a previous golden age, thawed out of their chrystal sepulchres, and exposed to our wondering gaze with their bones, their flesh, and even their hairy covering, still in perfect preservation. And the thaw will continue until the whole earth is as a summer garden, producing spontaneously all that is necessary to supply the wants of man and all other living beings, almost incomparably numerous as they will become at that period, and the longevity of all will be at its maximum.—'There shall be no more thence an infant of days,' says the prophet Isaiah, 'nor an old man that hath not fulfilled his days, for a child shall die an hundred years old'—so great, as in the last golden age of the Scriptures, will be the age of the mature man.

Whether those huge animals of which we find the remains, and which were the creations of that period, will appear again, by a gradual transition from other races, it may be in vain to enquire; but another prophet's vision of the valley of dry bones would seem to sanction the expectation. Certain it is that the 45th degree of latitude, and the adjacent latitudes in which these relics of stupendous organization are chiefly found, will then, as before, be the most fertile and productive both of animal and vegetable life, being midway to the equator, to which all rivers are now tending, and which will then be covered with water, and exposed to the direct rays of the sun, and the polar regions, which though free from ice and severe cold, will be without the dews of night, because there the sun will never set, but move round the horizon in perpetual apparition.

Yet this very place would seem to have been the paradise of the first parents to which we belong, for we find it stated in the scripture allegory in which their state is described, that both the tree of life, which I interpret as the magnetic axis of the earth, and the tree of knowledge of good and evil, by which I understand the axis of rotation, were in the midst of the garden, [Gen. ii. 9, and iii. 3,] as these axes demonstrably will be in the paradisiacal age. Indeed this beautiful and much misapprehended allegory, instead of being an account of a diabolical miracle, in which an animal without the organs of speech or the faculty of reason is made to talk and argue with the mother of mankind for the destruction of mankind, is, in reality, a profound and pregnant apologue, teaching that great doctrine of all antiquity, the physical and moral evils of the world that follow the descent of the earth's axis, in its serpentine course to the age of ice-floods and desolation. In this view that axis is indeed a tree of the knowledge of good and evil in the world. Its ascent causes all the good, and its descent all the evil, and the science of this tree is the knowledge of these its effects. Up to that, the period referred to, man had known only of its ascent; he was a new creature upon the earth, produced in the sixth revolution of axis, and in the middle of the golden age, when it was in the midst of the garden. But immediately after this it began to descend, and we soon detect the consequences in the production of the seasons. The human pair found out that they were naked, and they made some slight vegetable clothing; but this soon became insufficient for the increased cold, and the Lord God made them coats of skins and clothed them from its inclemency, a provision quite unnecessary had there been no change of climate. For, however moral evil may affect its agents and victims, we are not required to believe that it is the cause of all physical evil, that it influences the position of the earth's axis toward the sun, and produces that obliquity of the ecliptic which is the well known cause of the extremes of the seasons. That these results were brought about by the serpent I will freely admit, but that serpent was not a snake of any genus or species, but the serpentine or spiral motion of the earth's axis, under the influence of the magnetic poles, which are themselves controlled by the sun. And hence it is we find that this doctrine of the serpent has entered into the religion of every nation by which the sun has been worshipped—a worship more extensive than any other, and the doctrines of which still exist in many creeds where they are little suspected. The serpent, not as an object of dread, but hope, was held up by the great Jewish lawgiver for the encouragement of his people, and it is adopted even in the Christian system as an emblem of the great work of salvation. It is mentioned by Job in his astronomical allusion to the garniture of the heavens, and by most of the scripture writers, both Jewish and Christian. In Ezekiel's vision of the wheels, we have an inestimable view of the cycles of the heavens, as exhibited in the grand orreries of the temples; and in the Apocalypse we have not only the doctrine of the serpent, or spiral motion, but the very astronomical numbers and periods by which that motion is regulated, in a series of prophetic views which appear to embrace all the great mutations of the earth through the future periods of the destruction and renovation of all things.

I might greatly enlarge upon this interesting topic, but must forbear; the Hindoo Scriptures are equally profound upon these subjects with the Christian, and their harmony with the latter, and with the evidences of nature, are calculated to fill every unprejudiced student with that admiration and delight which the discovery of vast generalizing truths illustrative of the grand phenomena of nature, alone can inspire. I cannot refrain, however, from referring to the profound science embodied in one of the Scripture numbers about which there has been much controversy. If you will take the number 360, the division of the circle—and the French philosophers little know what they do in discarding this pure and faultless sexagesimal division for their new decimal one—and reducing it by 60, the number of minutes in a degree, then divide it by 666, the mystical number of the *beast* (or living creature), and thus reduce and divide until operation can be carried no farther, you will get a quotient of twelve results, expressing the mean diameter of the sun—not exactly, though very nearly, of that diameter as given in the astronomical works, the slight difference arising from the circumstance that the mean diameter of the sun, as popularly given, is taken according to the present ellipticity of the earth's orbit, while the diameter thus found embraces that greater ellipticity of orbit which accompanies a greater obliquity of the ecliptic; and, indeed, the whole range of ellipticity which follows the ascent of the earth's axis from a horizontal to a perpendicular position; for I may mention the discovery, that the ellipticity of orbits can be calculated in an easy and direct operation from the inclination of the axis by the great laws of Kepler, which have not heretofore been applied in this m n-

ner. And thus where the inclination of the axis is greatest the ellipticity is greatest; and when the inclination becomes minimum, the ellipticity will be minimum, so that in the golden age the orbit will be a perfect circle, and the year 360 days—one reason, no doubt, among many others, for the adoption of this very ancient, perhaps immemorial, division of the circle. The quotient thus obtained expresses not only the true mean diameter of the sun for this period, but the mean rate (32′ 36″) of the annual motion of the magnetic poles round the earth under the sun's forces, and the maximum amount of the projections of the earth at the equator when the axis becomes perpendicular, for it may be interesting to state that, as the ellipticity of the earth's orbit decreases, the ellipticity of the earth's form decreases; and when the former is minimum, the latter will be maximum, and *vice versa*. And the shape of the earth, or its deviation from a perfect sphere, as calculated from these numbers and principles, agrees, within the most trifling difference, with the figure of the earth as calculated from measurements of axes of the meridian, and demonstrated in the learned treatise by Professor Ayrey, the astronomer Royal of England. I might add that the table of the angles of the line of no variation, which, after deducting the flattening of the earth, is also a table of the angle of the moon's orbit round the earth, forms a perfect tide-table for every latitude, so that the mathematical demonstrations of these new principles of magnetic philosophy are conclusive, comprehensive and impregnable. Indeed it is the destiny of man to advance in certainty and to multiply the exact sciences until they embrace the whole field of nature. In the age which is proceeding, botany and other branches of natural history, as well as chemistry and geology, will be added to the exact sciences.

In the fullness of the golden age, upon which we have entered, all nature, so far at least as our Earth is concerned, will follow simple and regular laws, far less complicated in their phenomena than they now are, and more easily ascertained and demonstrated. Not only will mankind walk the Earth as gods and goddesses in form and beauty, but they will be as gods in knowledge, "knowing good and evil," in all their various relations of truth and error, happiness and misery. And will they not then discover that these qualities are but relative, existing purely in relation to each other, and having in the economy of the Divine Government, no abstract existence? "Shall we receive good at the hands of the Lord and not evil?" Is not evil essential to good, and good to evil? Are not these mere illustrations of the negative and positive principles or powers of nature, of which neither could exist without the other, and succeeding each other in an endless circle?

I have taxed your patience so long and so heavily upon this first division of my discourse, as to be compelled by time to dismiss the other with a rather amusingly proportioned brevity. I can scarcely do more than advert to that grand alternative of nature the destruction of all the creation which belongs to our solar system. If the two forces of nature always operate with strict mathematical equality, there would neither be creation nor dissolution, for they would balance each other, and the utmost there could be produced would be mere circles in space, composed of mere mathematical lines, without breadth or thickness. But if the attractions first prevail over the expansions, the free gaseous matter in space will be collected into spherical forms, as we reasoned at the opening of this subject, and such as these we see abound in the universe. The attractions combining to their ultimate results, must bring all matter together in one vast orb, to which the dimensions of our Sun now bear no comparison. This must be the final result of a predomination of attractions and contractions over repulsions and expansions, whatever intervening but inadequate reactions by repulsions may occur to protract it. At each change of the orbit of a planet from an eclipse to a circle, its era will be diminished, and when it returns to an ellipse again the era of that ellipse will not be so large as it was before. Thus the planet like an insect narrowing its circles round a taper, must ultimately run into the Sun to augment the already inceivable bulk of that luminary—a bulk, however, not larger in reference to infinite space than the smallest molecule in nature. This is its present progress and destiny, and I consider that we have data to calculate the period of its accomplishment, although the period would be too vast for comprehension were it developed. In the mean time, and probably long before that termination of our world's distinct existence, the condensation of its atmosphere and gases will renderit in unhabitable; will generate internal heat that will reduce it to a mere shell surrounded and filled with dense gases, and it will be received by the Sun in a state already nearly prepared for the next great alteration, that of expansion again, as gaseous matter into space, from whence it came and weither it must return. And thus the great circle of eternal alterations, with the geometrically perfect triangle of two forces and one matter within it as an active and unerring principle, will revolve forever, without end as without beginning.—*N. Y. Tribune.*

THE MAGNET.

NEW-YORK, MAY, 1843.

THE MAGNET,

TO ITS READERS.

Many of you will doubtless remember, that when the Magnet was first offered for your patronage, it was a matter of some doubt whether it would be advisable to patronize it. It was quite uncertain in your mind, whether the enterprise could be sustained, and withal, there was so much deep rooted prejudice every where prevailing against the subjects to be treated of in its pages.—However, it has been continued through the year, and from month to month, you have been pleased with the matter with which its pages have been filled. Indeed, you have been agreeably disappointed; for you had no idea of finding yourself so much interested in the details of facts which had so long been reported by many as nothing more nor less than the offspring of deceived or dishonest minds. But candid investigation has left no room to doubt. In what we denominate *pathetism*, you now recognize an agency which is concerned in every feeling or emotion, or passion, or volition, or action which was ever felt, or put forth by any human being. You see that it has to do with the laws of animal life—with nervous *susceptibility* to pleasure or to pain. Without it man is but a lifeless body of matter. All the feelings therefore which one human being may be able to excite in the mind of another, whether pleasurable or otherwise, all the influence he is enabled to exert over mind, are identical with this same agency. If they be drugs from the materia medica, received into the stomach, or agencies applied to the surface of the body, their effects depend upon

this *susceptibility*, peculiar to the living body. Or, if impressions be made upon the sensorium through the eye or ear, or through the nerves of sensation, the immediate agency which carries those impressions to the mind is *pathetism*. Whatever the impression be, or whatever the minute agency by which it is made the medium through which it reaches the mind, is that *agency* or *susceptibility* which we denominate pathetism. It is heard in the tones of the voice, it is seen in the look of the eye, and the features of the face; and in its effects thus produced, nothing is thought of it, because these are common and always before the mind. But when precisely the same thing, is felt from the touch of the human hand, those not familiar with the true philosophy of mind start back and tell us this cannot be? But why not? What has been known, or what is now known of the human system, which proves, that the same influence may not be communicated to one, from the touch of the hand which, at other times reaches the soul through the eye, or the ear? Or, who has been able to tell *how* it is that an impression is made upon the *mind* through the *ear*? How does sound reach the intelligence? What is there in sound to effect *mind?* Or when the rays of light strike upon the optic nerves, what makes the intellect take cognizance of the image which they make there? In a word, *how* is it that what we call *mind* is impressed by natural agencies, in any way? Can matter control spirit?

And, pressing our inquiries thus far, we might ask an objector to tell us the difference between matter and spirit? What is an *element?* What are the laws by which mind and matter reciprocally effect each other? What is *life?* What is disease and death?

Do you say that we know nothing of these first principles; that we are in the dark as to the laws which operate in producing the most common occurrences of life? Then it must not, it will not be denied but that there are other things as mysterious and unaccountable, as the wonders of phrenopathy or clairvoyance. When we place the hand upon the head of another, and he manifests a feeling of sadness or joy; when by the same simple process, we cause him to weep or to sing, laugh or pray, to rave with madness or to soar in ecstacies of pleasurable emotions, is there any more real mystery in the agency by which these thing are done, than when one is made to weep by merely looking upon a scene of suffering; or when he is induced to sing from the influence of certain *sounds* which break upon his ear?

And thus of mental perceptions, when the external senses are closed. It is not uncommon for persons to have more vivid and impressive views of objects in their natural sleep, than they ever had in their waking state. The system being composed and all the faculties at rest, except the one or two whose excitement constitutes the dreaming, the energies of the whole seem to be concentrated upon those organs, and an impression is thus made more powerful than any which could be produced when all the organs are in a state of general wakefulness. The phenomenon of dreaming is common, and therefore excites no surprise. But when one is put into a state of sleep by artificial means, and in that state he is found to see with his eyes fast closed, and to have perceptions of distant objects, the phenomenon is new and we cannot admit it.

If we take two pieces of smooth soft iron, and put them in contact, we do not see that one has any influence upon the other; but if we rub one piece upon the other, in one direction only, for a length of time, we perceive, that by this process, we have established such a *relation* between the two, that they mutually attract each other. And yet, we cannot detect any substance in either of them which was not there before; nor do we see that a fluid of any kind is actually *communicated* by one and *received* by the other. All we know about this phenomenon is, that by a certain process, a *relation* has been established between those two pieces of iron, which causes them to stick together in this manner. What that relation is we do not know. It would seem, however, that this process had actually produced a difference in the *qualities* of those pieces of iron; for before they were passed upon each other in the way we have stated, they were precisely alike in *quality*; for on applying either of them to either pole of an ordinary magnet, they affected it exactly alike. But, not so, after they have been rubbed together, as above stated; for, after this process, one of them will be found to possess north polarity, and the other south; thus proving that though they were precisely alike in quality, before, yet, this process has changed the quality of both, and rendered them *susceptible* as above stated.

But who, on seeing this simple phenomenon, would set it down as humbuggery? And yet is there not precisely, as much of *mystery* and the marvellous in all this, as in any of the alleged effects produced by pathetism?

Every body knows, that the health of a well person is endangered more or less, by coming constantly in contact with another who is diseased. But by what law is disease communicated in such cases? Children who sleep with the aged and infirm, are known to become enfeebled, and sometimes, even to assume the decrepid appearance of old age. When the little one is hurt, by accident, the mother instinctiveiy, passes her hand over the place, as if it were a call of nature which prompted the removal of pain by this simple process. And you will see similar promptings of sympathy, even among animals, when their young or their species give signs of pain or suffering, so easy it is to trace this same law through the various grades of animal existence. Yet in all these things we see one of the laws of that *agency* and *susceptibility*, which we denominate pathetism; and we may understand, how mistaken the views of those persons are, who look upon the subjects discussed in the pages of this work, as exclusively connected with the marvellous, and confined to those who deal in jugglery, or fortune telling, or the mysteries of the "black art."

We see, moreover, how it is, that our labors present their claims upon the benevolence of the philanthropist, and the faith of the christian; in as much as the grand object is the investigation of those causes which induce the most frightful forms of disease and suffering which human beings can be doomed to endure. What disease is more to be dreaded than that of *insanity*? What affliction more terrible than that which deranges the mental functions, and unhinges the human mind? What more appalling than a disease which makes shipwreck of the intellect, and converts the reason into the ravings

of madness? What calamity like that which changes the dearest, tenderest ties of the kindest heart, into the bitterness of gall, and the furious paroxysms of hatred? What malady so frightful, so pregnant with woes, so difficult to manage, so painful to friends, and so fearful in its tendencies? Before the blight of this dreaded affliction, the fairest, tenderest flowers are swept away as by the blast of the tornado. The loftiest minds, the stars and suns of our intellectual heavens, are blotted out; neither age nor sex, nor profession, are spared. Even the consolations of our holy religion, the devoted christian, and the man of God, at the altar, are alike liable, and as often fall beneath this fatal scourge.

Alas! when, oh! when will professed christians see and know as they should do, that upon the laws, which we propose to investigate in the pages of this work, depend those states of the mind, which render obedience to the Divine Being, and religious enjoyments even possible; that the laws of mind, those laws by which mind is developed and made to understand its various relations, are as really the laws of God's appointing, as any contained in the sacred pages; and that the violation of these laws unfits us for the Divine will, as really as the commission of any other crime?

But we forbear, and will merely add, that we have the facilities for making our next volume, far more interesting and useful, we hope, than the present has been. It is our design to give more matter, directly bearing upon the various departments in Human Physiology, so that gentlemen in the medical profession as well as others, will find in our columns, a selection of pathological facts, which will render the Magnet not unacceptable to them, on this account, even though it should contain nothing of special interest in other respects.

It will be our object, also, to give more attention to the subject of Phrenology, as we are confident, we shall be able to do this subject more service than heretofore; and with the matter we shall be able to lay before our readers, from month to month, on the various other topics stated in our prospectus, we can but hope, that the Magnet for the coming year, will receive that amount of patronage which the importance of these subjects is so generally acknowledged to demand.

Trance and Natural Cloirvoyance.—There is, at the time of writing this article, (April 4), a case of trance and natural clairvoyance in this city, of considerable interest.

A young lady about sixteen years of age, made a public profession of religion and connected herself with one of the Methodist Episcopal churches here, about six weeks ago. For the last ten days she has been most of the time, in a state of *trance*, as her religious friends call it. It commenced very soon after she had been much *excited*, and had professed to become completely sanctified. She was observed to fall into an apparently unconscious state, and the limbs becoming quite rigid, precisely like the cases we have before described of natural somnambulists, or when we have induced the state by pathetism.

This is, undoubtedly, a case of somnambulism, though her friends, (some of them) think it quite *miraculous*.—She has, occasionally, a correct perception of the characters of different persons who enter her room, and will address them in reproofs, or exhortations to prayer and praise, according to their various characters, though she is said to have had no previous knowledge of them beforehand. When one enters her room who is pious or believed to be so by her, she clasps her hands into the form of what she calls "a crown," and places them upon his head; and the statements she makes about the character, views and feelings of those who have been to see her, are considered by her friends, as the miraculous interposition of the Divine Being. And we frankly confess, that there is every way as much of the miraculous in this case, as in those of the "Tyrol Virgins," noticed in our last.

One of her friends, a clerical lady, seemed to view it as quite profane, when we informed her that we had put persons into a state precisely similar, in which they had made descriptions of the characters of strangers every way as correct and remarkable as in the present case.—And it is curious enough, to see how honestly many good people will believe in a case of natural clairvoyance, when they are horror struck in being told that the same state may be artificially induced, without any thing of the *miraculous* in it. And we have been often reminded, that had we set up for "a prophet" before we restored a lady to her voice, (who had been mute for two years) last summer, or before we had performed some of the other cures already referred to in the Magnet, we might have held a successful competition with Joe Smith, and shared the chances with him of lining our pockets with gold instead of working for nothing, as we have done, and being reported as a mere juggler, or something worse.

Pathetism, with practical instructions for its application in the cure of disease.—Illustrating those states of the mind called Somnambulism, Insanity, Dreaming, Second Sight, Somnipathy, Trance, Clairvoyance, and various Nervous and Mental Difficulties, which have hitherto remained shrouded in mystery, by La Roy Sunderland.

Published and for sale by P. P. Good, at the Magnet Office, 138 Fulton street, New York.

This work goes fully into an examination of every thing relative to this subject, and is believed to give a more correct and satisfactory explanation of its mysteries than any thing of the kind hitherto published.

ANTHROPOLOGY.

MAN AND HIS DISEASES.

BY P. CUNNINGHAM, ESQ.

CHOLERA.

In the section upon epidemic, I have pourtrayed the influence which the sol-lunar attractions and repulsions must naturally have in giving a westerly tendency to the magnetic matter composing it; and hence it is, on this account, unlikely that the epidemic effluvia causing the recent cholera in Europe, will return again by a westerly route. The great branches of the Mississippi will act in some measure as barriers to its westerly tendency in America, by carrying portions of it downward into the Mexican Gulf by the attractions of their current; while in the event of its crossing into the southern hemi-

sphere, the repulsion of the magnetic zone there will diffuse it more equally throughout the atmosphere, and consequently make it less intense in its attacks. It appears to commence as an excrementitious disease, and to continue so through all its stages; being characterised even at the outset by an increase of the pale magnetic secretions, and a decrease in the coloured electric ones, such as the bile and the urine; while the blackness of the blood, muscular spasms, shiverings, and diminution of bodily bulk, evince the magnetic action going on.

The blood we see to be reddened by the application of oxygen, which extracts the magnetism on which its dark tint depends; while the darkening of it by certain of the acids and the reddening of it by certain of the non-purgative salts, may be ascribed to the former imparting magnetism, and the latter electricity to it, acording as either of these latter bodies exist in excess over the other, in the state of mass, in the said acids or salts.

The ease given by vomiting, in cholera, points out the benefits to be derived by the ejection of the magnetic epidemia from the body, and I doubt not but many cases have been made to terminate fatally through the injudicious checking of this highly salutary process. In fact, in cholera, as in all cases where this occurs, it ought to be encouraged by plentiful dilution, in order the sooner to cut short disease, by the ejection from the system of the electro-magnetism causing it. But as it is frequently found impossible to produce vomiting in the violent cases of cholera by means of the usual emetics, I conceive this would be readily effected even in the most obstinate of them, by rapid rotation, which, even if failing as an emetic, would produce the similar result of ejecting the epidemia; while by tightly enveloping afterwards the whole body in folds of flannel, the epidemia would be prevented from reentering it after repulsion, and the cure be consequently completed.

The above remedies are applicable to the treatment of cholera, whether this be conducted on the stimulant or sedative principle, both of which have been successfully employed, the error liable to be committed being the mingling of the two, so that the one is thereby made to counteract the other. Should the recrementitious or stimulant treatment be resolved on, and collapse have taken place, the patient, after rotation to vomiting and approaching syncope, should drink freely of warm stimulating liquids, be enveloped in folds of flannel, have recrementitious remedies, such as charcoal, salt, calomel, &c. administered, the hot stomach-pan applied to the abdomen, and hot substances to the feet; gradually reducing the above when the stimulant reaction took place, in order to prevent the too violent recrementitious action, so liable to be induced by the too sudden checking of the previous excrementitious one. If, however, the sedative or excrementitious treatment be resolved on, the patient, after rotation to vomiting and approaching syncope, should then be lightly covered, drink freely of iced water, and have sedative remedies exhibited to assist the others, there by imbuing the body with a sufficiency of magnetism to check the deadly excrementitious action going on, upon the principles heretofore previously explained of electricity in excess, or magnetism in excess, putting a stop to galvanic action. Independently of thus putting a stop to the magnetic action going on, and thereby curing the cholera by excrementitious remedies, the simple carrying of the above magnetic or sedative action to excess, by the constant exhibition of magnetic remedies, would tend to bring on an electric or stimulant action, and thereby equally effect a cure, in consequence of the law in the human system, that the greater the intensity of the primary action, the sooner will the secondary action ensue, and the greater will be the intensity thereof. This is well exhibited in intermittent fever, the *intenser* the cold stage the *shorter* being its duration, and the intenser and *shorter* also the succeeding hot stage.

This alternation of electric and magnetic action in the system, seems referable to the strong attraction of electricity and magnetism for each other; so that when electricity is in excess in the body during recrementitious action, it will attract magnetism strongly toward it, and when magnetism is similarly in excess during excrementitious action, it will attract electricity toward it; so that the greater the primary excess of the one, the greater will be the subsequent amount of the other thus attracted, and the sooner therefore the peculiar action excited by either be put a stop to, provided the body be sufficiently strong to withstand the intensity of the primary attack.

The ease primarily afforded by iced drinks in cholera, seems attributable to the sedative influence of their action, from magnetism or cold being thus applied in excess near the seat of the disease; while the vomitings to which they eventually give rise on becoming heated by electric absorption, tend to render this cessation from diseased action permanent, by ejecting the magnetic epidemia exciting it from the body. In all the cases of cholera on board the Tyne, caustic applications over the cramped portion of the abdomen never failed of giving relief, their beneficial influence being doubtless as much owing to their translating of the galvanic action from the internal parts to the surface, as to their insulating effects upon the latter. Tight ligatures round the extremities have been found highly useful in arresting the progress of cramp, and the cold stage of intermittent fever, both magnetic paryoxysms, and having found the same result produced in several cases of severe dysenteric gripings, I am consequently disposed to believe that similar applications round various parts of the body would be found advantageous in cholera. Their utility must, I conceive, depend upon the resistance opposed by them to the onward motion of the bodily electricity, thereby exciting the latter to stronger efforts in order to overcome this resistance, and in consequence thereof eventually producing a general stimulant action throughout the system.

SCROFULA AND SCURVY.

Both of these are primarily recrementitious, as evidenced, by enlargement of the solids always preceding the excrementitious suppurations, ulcerations, perspirations, diarrhœas, and salivations, which usually accompany one or other of the above complaints; the correctness of this view being farther demonstrated by excrementitious remedies being found best adapted to the general treatment of them in our attempts to effect a cure. In scrofula there is a natural over activity in the recrementitious vessels, while in scurvy the over activity is produced by the too stimulant nature of the diet. People of two distinct species of hair, and complexion, are most prone to the attacks of scrofula, viz. those of yellowish hair and blue eyes, and those of straight black hair and black eyes; while persons of every color of hair seem equally liable to scurvy. The over intense recrementitious action in scurvy may be caused either by an excessive use of salted meats, spirituous liquors, mercurials or other powerful recrementitious substances; or to the recrementitious food, constituting the diet, being too digestible, and consequently too nutritious, either from being in a too fluid state, or else in a partial state of decay.

Scurvy will naturally be more readily excited by the above substances when the persons lead inactive lives, or do not use a sufficiency of excrementitious vegetables, or water: active exercises naturally accelerating the circulation of all the vessels, and thereby pushing on the matter of the food absorbed, from the recrementitious into the excrementitious vessels, before a thorough galvanic decomposition of it in the former had been effected; while water being the principal constituent of the excrementitious discharges, hence the necessity of supplying a sufficiency of it for excrementitious purposes, so as thereby to prevent recrementitious disease.

Water containing eighty per cent. of oxygen, must, consequently, I conceive, contain mass-magnetism in excess, and hence to this may partly be owing its use as an excrementitious remedy; while the fact of the sulphate of iron and other recrementitious salts giving out heat when dissolved in it, and the sulphates of soda and magnesia, and other excrementitious salts, giving out cold when so dissolved, afford an illustration of the views previously promulgated of recrementitious remedies requiring mass-electricity in excess, and excrementitious remedies mass-magnetism in excess, and point out the cause of the salutary effects produced by the exhibition of nitre in scurvy, which giving out cold in its solution in water, thereby shows it to contain mass-magnetism in excess, and consequently, that its effects upon the system must be excrementitious. A further illustration of the above view is afforded by bodies giving out cold, during the action of water upon them, always as far as I recollect, affording colourless solutions; while those which gave out heat, when acted upon by water, afford solutions corresponding in tint to some of the sun's magnetic rays, even though the substance dissolved be colorless.

The primary or leading action in scrofula and scurvy being, therefore, recrementitious, hence the salutary effects that have been found to result from excrementitious treatment in them:—a vegetable regimen and the exhibition of such substances as excite the excrementitious discharges, with an abstinence from all articles of diet which excite recrementitious action, being seldom found to fail in effecting a cure, while the recrementitious action is *still* the more active of the two.

Scurvy is a very rare disease at the present period to what it was in former times, which may be readily attributed to the more perfect mode of preserving the provisions now than formerly, whereby they are rendered less decomposible in the stomach, and consequently less recrementitious, as well as the more liberal supply of water for drink, the more general cleanliness and ventilation, and more general attention to the comforts of the men. I conceive, however, that the more liberal use of *tobacco*, both in smoking and chewing, has no small share in producing this result, its action upon the system indicating it to be a powerful magnetic substance; thereby showing that its effects upon the body must be similar to those of vegetables, vegetable acids, and other excrementitious substances. Merchant-ships are indeed, in modern times, quite as free from scurvy as ships of war, although less attention be paid in them to cleanliness and ventilation, and antiscorbutic remedies be furnished for the longest voyages; the seamen, however, making up for these deficiencies by the more active lives they lead, but particularly, as I conceive, by their using tobacco in one form or another during every watch. The use of tobacco must indeed be most salutary to those indulging in habitual excess in stimulant food or drink, by preventing the enlarged livers and other recrementitious diseases of the solids, which might otherwise ensue. It must be observed, however, that as diarrhœas and other excrementitious discharges often eventually cure the primary recrementitious disease: hence when such is the case, the excrementitious affection may be the one requiring attention from its proceeding to too great an excess.

It is on this account, I conceive, that calomel, exhibited to touch the gums, was found beneficial in several of the scorbutic bowel complaints at the Millbank Penitentiary, a scorbutic disease evidently brought on there by an over-nutritiousness of the food, and a want of that due exercise requisite for promoting the excrementitious discharges.

In the above diseases, characterised by a primary enlargement of the solids, the fat, a solid substance, seems to be little affected thereby; on the contrary, a morbid enlargement of the fat seems rather to denote a healthy state of the body than otherwise. This may be accounted for by its being a sort of medium between the solid and fluid secretions already treated of, so that its vessels, by their increased activity, will serve the useful purpose of keeping up a balanced action between the two other species of vessels, and thereby retain them in a healthy state.

SCROFULUS, OR TUBERCULOUS CONSUMPTION.

When scrofulous tumours in any part of the body suppurate, while others are still in a state of solid enlargement, a mixed disease is thus constituted; the action in the ulcerated, or suppurated tumours, being excrementitious, while that in those still progressing in solid enlargement, is recrementitious. We can, however, beneficially adapt a mixed treatment to this mixed disease, when the ulcerated parts are situated externally, by making the general remedies recrementitious; but when important internal organs, like the lungs, are so affected, where local remedies cannot be applied, the treatment must be exceedingly embarrassing; and hence the great utility of checking scrofulous action in youth, by suitable regimen, and suitable medicinal remedies, so as to prevent the many untractable diseases in particular parts to which it gives rise. General excrementitious remedies will tend to increase the morbid ulceration and discharge in the suppurated tumors, while general recrementitious remedies will tend to increase the solid enlargement of those affected with recrementitious action; but when the patient had a general relish for cooling fruits and cooling drinks, I would not hesitate to employ excrementitious diet, and administer cautiously excrementitious medicines, even should there be considerable expectoration or other excrementitious discharge. Rotations, shaving, and insulation of the chest, and spongings and frictions of the body, will be useful, whatever species of action is going on; but when scrofulous consumption does not speedily yield to the treatment pursued, the patient ought then to be removed to the southern hemisphere, where the magnetic polarity of the upper part of the body, and the more uniform diffusion of magnetism through the atmosphere, will, in all probability, arrest the disease, if timeously had recourse to.

BRONCHIAL CONSUMPTION.

This is an excrementitious disease of the bronchial tubes of the lungs, and eventually destroys, either through the profuseness of the discharge, or the gradual closing up of these tubes, by the contraction of their circular fibres, as constrictions in the urethra and rectum are produced by similar excrementitious diseases in these parts, viz. gleet and chronic dysentery. Bronchial consumption has indeed been denominated, by some, the gonorrhœa of the lungs, and I doubt not but the matter of it would be found

equally capable of propagating a similar disease, if brought in contact with the bronchiæ of a healthy lung. It is, I believe, the disease denominated in England "the galloping consumption," from the rapidity with which it carries off its victims, while it is the common consumption of the southern hemisphere, being infinitely more frequent there than in the north, though generally slower in its progress toward a fatal termination. The only two cases of death from this disease in the southern hemisphere that I have had an opportunity of examining, showed a complete shrivelling up of the greater portion of the lungs, in consequence of the contraction and obliteration of the bronchial tubes, muco-purulent matter filling the open spaces with a few sacs thereof, in the substance of the lungs, near their junction with their trachea. This appears to be the species of consumption so successfully treated by the Rev. Mr. Stewart with stimulating regimen, cold sponging, and frictions, and the one in which touching of the gums with mercury has been found so beneficial. A removal to the southern hemisphere would only aggravate this disease, on account of magnetism, the cause of it, occupying the other part of the body in the upright position there, and magnetism being more equally diffused through its atmosphere;—the hot latitudes of the northern tropics being the best adapted to its cure,—those latitudes in fact which will necessarily be the most injurious to scrofulous consumptive cases.

Scrofulous consumption is most common during the early stage of life, being seldom met with after the age of forty, when the advance of grey hairs enables magnetism gradually to preponderate over electricity in the body, and excrementitious action thus to keep the recrementitious in check. Bronchial consumption, on the contrary, is most common after the period for scrofulous consumption is past, the constitution becoming more and more susceptible to its attacks, and the disease more and more fatal as life advances. The bronchial inflammation exciting it, is indeed frequently epidemic, carrying off, under its name of influenza, the greater portion of the elderly people whom it assails.

A very common belief exists of consumption being occasionally infectious, and which, I think, not an improbable supposition, as regards the bronchial species of it, when a person of susceptible habit was exposed to the near inhalation of the foul air emitted from a highly diseased lung.

GOUT AND RHEUMATISM.

Both of these diseases are primarily recrementitious, ending in excrementitious action. They are sometimes conjoined, constituting the compiaint called rheumatic gout; but in a more distinct state. Gout affects principally the ligamentous capsules of the small joints, and rheumatism those of the larger, as well as occasionally the ligamentous partitions of the muscles;—the ensuing excrementitious actions of the former producing chalky-like depositions, and that of the latter, serous and gelatinous depositions. That the recrementitious action in rheumatism exists in the muscular fascia, is evidenced by the muscular thickenings or contractions which attend it, owing to the electricity on which muscular relaxation depends, being withdrawn therefrom to supply the electric or recrementitious action going on in the tendinous capsules enveloping them. In the acute stages of either, I would not hesitate to adopt the treatment pointed out in scurvy; but when the excrementitious action prevails over the former, and the chronic stage of it is thereby produced, the doses of the remedies should be lessened, and even a moderate proportion of stimulants might eventually be found to be beneficial.

Since the preceding views relative to the causes of diseases were taken by me, I have pursued the excrementitious plan of treatment with singular success in all cases of rheumatism that have come under my care, keeping the patient on low regimen, using daily warm spongings and frictions to the body, preserving the bowels in an open state, and exhibiting the Dover's powder in small doses throughout the day. I prefer small doses of medicines at short intervals, to large doses at long intervals, because a constant gentle action corresponding to the nature of the medicines prescribed, is thereby kept up; whereas, if large doses be given at long intervals, a reverse action of that excited by the medicines may take place in the interval, and thereby protract the cure. The benefits of this practice have been well proved to me in the comparative rapidity with which rheumatic cases have recovered since I administered the Dover's powder in small and frequent doses, to what they did formerly when a different course was pursued. In the most obstinate cases of lumbago, the hot stomach pan applied constantly to the back, has never failed of effecting a cure in a couple of days at the most. The hot vapour baths remove at once the pain of the muscular spasms, by the electricity which they infuse into the muscular fibres causing an elongation or relaxation of them, while the excrementitious perspirations to which they afterwards give rise, are found equally beneficial in arresting the recrementitious action going on in their tendinous envelopments. Rheumatism being a more general disease than gout, I would consequently, encircle tightly the whole body in dry flannel, after each rotation, warm sponging, and friction; but in gout it would be sufficient to confine the flannel envelopment to the part affected, with a padding of cotton wool over it, to insure a more perfect insulation.

CUTANEOUS DISEASES.

These being the sequelæ of recrementitious action, hence by the cure of the primary disease, the secondary will cease as a matter of course. This is particularly obvious in the rose rash of the face, where local applications are only of a temporary benefit, as long as the primary recrementitious action in the system which causes it, exists. In many constitutions it is not only necessary to abstain from stimulant solids, and stimulant fluids, but to keep up an excrementitious discharge from the bowels for several days, by means of the Epsom and other cooling salts, before local remedies are of much avail. I never failed of curing the most inveterate local cutaneous affections by the caustic solutions; the porrigo barbæ generally requiring, however, several touchings, before a cessation of its morbid action was attained; removing the crusts and pruning down the hairs previous to each application.

DELIRIUM TREMENS.

This is a primary recrementitious disease, terminating in excrementitious action, wherein the transitions from the one to the other being as sudden as violent, consequently great caution is requsite in the treatment pursued, because the remedies that would be salutary when the first action is going on, would be pernicious in the second; while even those requisite in either would be productive of bad results, if administered in large quantities from the too intense specific action they would respectively excite, only tending to bring about a more rapid and intense action of a contrary description, through which the disease would be necessarily prolonged, even if a fatal crisis should not, in the interim, be occasioned. Moderate rotations, cold sponging, frictions, and gentle evacuents must, however, be salutary, what-

ever species of action may be going on. The many well attested cases of spontaneous combustion show to what an extent galvanic action may proceed, and that the popular belief of a blue flame issuing at times from a person's mouth, who has drank stimulants to excess, may have a good foundation. As far as chemical knowledge at present extends, spontaneous ignition in such cases could only arise from the gaseous matter emitted from the lungs containing phosphorous, but if any inflammable gas happened to proceed therefrom, the approximation of a candle would be sufficient for this purpose; hydrogenous gases, capable of being so ignited by a candle, being, in fact, frequently formed in water casks at sea, as well as in the the bowels of animals, particularly the horse, so that a similar formation of it in particular cases in the lungs is a perfectly probable matter.

CANCER.

This is another specimen of a recrementitious disease, ending in, or rather alternating with, an excrementitious one; the solid enlargement and ulcerated decrease alternately progressing until death ensues through the extent of their combined ravages. The remedies found most successful by medical men have been caustics, metallic oxides, and pressure pads over the dressing, all deriving the principal portion, at least, of their beneficial influence from the insulating effect which they produce on the surface of the sore. It is, in fact, by a similar plan to this that empirics have cured so many cancers, inveterate tumours, and ulcers, applying primarily some potent caustic, and afterwards further insulating with some strongly adhesive plaster "to draw out," as they term it, the cancer. It was by a similar mode to this, that an empiric gained great reputation in a town where I once resided, in the cure of cancerous stiled substances, which after being extirpated, were preserved hanging down in bottles, "like roots of plants," (as expressed by a friend), the general certainty of the healing up of the sore after this extirpation, bearing ample testimony to the merits of his practice.

In accordance with the above view, I would cauterise freely the ulcer with nitrate of silver, pad it well with lint, and over it, as well as a considerable portion of the surrounding parts, place slip upon slip of adhesive plaster, after which cover all with a thick padding of cotton wool, and finally bandage down tightly, in order to exclude effectually the atmospheric air, and consequently the electro magnetism from the diseased superficies. As long as ease was secured, I would be in no hurry to renew the dressings, because the above feeling would be a sufficient guarantee that a sanitary action was going on, while each renewal would only serve to admit a fresh supply of electro-magnetism for the feeding of the disease.

LOCAL POISONS.

It is a disputed point, whether the poison from the bite or sting of reptiles or insects, be carried into the system through the nerves, the absorbents, or the blood vessels. However as insulation of the part poisoned, by means either of cauterisation, or cupping-glasses, prevents the accession of diseased action, it may be presumed that the poison so imbibed, attracts to it similar electro-magnetic matter to that constituting its active properties, and is carried into the system by the *vis a tergo* force of the latter; for how otherwise could the very small quantity of virus primarily imbibed, be capable of producing such fatal results, or the above insulating remedies present such an effectual barrier to its introduction. Whether the action excited by these poisons be recrementitious or excrementitious, that is whether electricity or magnetism be the leading cause of their actions, I have not sufficient proofs to draw satisfactory conclusions from, because the drowsiness caused by most of the stronger poisons may be as likely produced by excess of electricity as excess of magnetism, seeing that both in excess produce sedative effects.

The great benefits derived from the suction of poisoned wounds point out a similar powerful suction of all painful punctured wounds, until ease was obtained, as the most likely remedy to obviate the poisonous or tetanic effects that might result therefrom; particularly if care be taken to cauterise them well afterwards, and otherwise effectually insulate them from the electro-magnetism of the atmosphere. Rotation, until copious vomiting and approaching syncope ensue, cannot fail, I should conceive, of being highly useful in all cases of bites or stings of poisonous or rabid animals; the vomiting which so rapidly occurs in the bad cases of poisons, pointing out the means through which nature attempts to effect a cure by the restoration of an electro-magnetic equilibrium in the body, drinking freely of course at the same time to assist nature's efforts, because the greater the quantity of the tepid water drank, the greater would naturally be the amount of electro-magnetism ejected along with it, in consequence of its attracting that of the body, in a ratio corresponding to its bulk.

TETANUS.

The morbid spasmodic rigidity of the whole muscular system would seem to denote the primary action in this disease to be excrementitious, but I am disposed to believe that, like rheumatism, it is a recrementitious one of the muscular sheaths, thereby causing a contraction of the contained muscles, by the withdrawing from them of the electricity on which their elongation depended. If such be the case, excrementitious treatment must be the one required, using at the same time frequent rotation to vomiting and approaching syncope, with insulation of the body in the interim of the rotations, by means of flannel folds and cotton paddings.

TIC-DOLOREUX.

In the case of this disease at Islay, previously referred to, the insulation of the part where the nerve emerged from the skull, was found sufficient to effect a cure, but this might not always be so; I conceive, indeed, that the exciting cause of the tic-doloreux may generally be traced to some local irritation, on the removal of which it will naturally subside. Every medical man must have indeed witnessed permanent or recurring tumours, and ulcers about the face and gums, occasioned by diseased teeth, which speedily yielded on the extraction of the latter.

A short time ago, I was attacked with a tic-doloreux affecting all the branches of the portio dura, the pain, however, being naturally most acute at the point before the ear, where this nerve emerges from the brain, by pressure upon which with the fore finger, I was not only enabled to keep the pain completely under, but to moderate it greatly for some time afterwards. On removing the finger one day, after a short pressure, I felt a sudden painful twinge proceed from the front of the upper jaw towards the ear, which induced me to examine, by finger pressure, the parts around; when the cause of the disease was soon indicated to be a diseased eye-tooth, by perserving pressure upon the root of which, I at length succeeded in curing a disease, without the extraction of the tooth, which had become such a torment to me as to destroy many a night's rest. Every part of

the face and mouth ought, therefore, to be carefully examined in such cases, as the cause of it may as frequently lie in some irritable tumour, pimple, or ulcer, as in an irritable tooth.

ENTERITIS.

This is evidently a recrementitious disease of the muscular intestinal coats as plainly evinced by the abdominal tumefaction arising from the surcharge of the muscular fibres with electricity, through which they are elongated and consequently relaxed. In inflammation of the other intestinal coats, as exemplified in acute dysentery, the intestinal muscular fibres are on the contrary, contracted, owing to the electric matter which elongated them being now drawn off, for the supply of the morbid electric action going on in the other coats.

Purgatives in this complaint must, generally speaking, be pernicious, until the inflammatory action is subdued; but if we give them at all, they ought to be of the magnetic kind, viz. Epsom salts and such others as give out cold during their solution in water.

DROPSY AND DIABETES.

Both of these are excrementitious diseases, the first existing in the excretories of the bodily cavities, and the second in those of the kidnies. Mercury given in small doses until the gums are slightly touched must be highly useful in both; but when pushed to salivation, its effects must, generally speaking, be pernicious; because, although salivation is an excessive excrementitious action in a different system of excrementitious vessels to those of the bodily cavities and kidneys, yet the tendency of this action to shift from one class of excrementitious vessels to another, renders the excitation of it, in any one of them at all times doubtful; salivations, diarrhœas, and excessive perspirations and urinary discharges being all so liable to alternate with each other, on any one of them being too suddenly checked.

Indeed, mercury pushed too far is as liable to excite excessive action in the excrementitious vessels of the bowels, the kidnies or the skin, as in those of the salivary glands, and hence its administration ought to be instantly suspended the moment any of these are so affected; a case of diabetes having come under my cognizance which was brought on by a mercurial cause. The treatment of this latter disease by frequent small bleedings, so successfully pursued by Dr. Watts, might I doubt not, be equally advantageously employed in all other excrementitious diseases, producing as small bleedings do, a consecutive recrementitious action from the thinning of the blood rendering it more easily decomposed, or digested, by the electro-magnetism of the body, while at the same time, creating a demand or appetite in the latter for a further supply of recrementitious vascular food. It is upon small bleedings that farriers chiefly depend for the cure of horses falling off in flesh, or, in other words laboring under excrementitious disease; and as this remedy has been already beneficially employed in one species of excrementitious disease in the human body, I see no reason why it should not be extended to the whole. The species of bleedings thus required in recrementitious and excrementitious diseases, are necessarily as diverse as the medicines; small bleedings in the former being more likely to do harm than good, while in the latter large bleedings would tend to fatal results.

CONSTITUTIONAL RENEWAL.

The views relative to the action of electro-magnetism in the human body, which inductive reasoning and the conclusions drawn from the changes it produces have led me to adopt, induce me to believe, that old age is not the cause of gray hairs, but that gray hairs are the cause of old age, by the progressive magnetic blanching and drying up of the juicy texture of the hairs, enabling them to progressively attract a larger and larger amount of magnetism until the electricity which built up the human fabric, and retained it afterwards in vigour, no longer able to contend against the excessive magnetic introduction, yields gradually therero; through which life is eventually extinguished. If the above view be correct, therefore, provided we can accomplish the restoration of the primitive color and juicy texture of the hair, and there be no organic disease of any important vital part, we will be able to restore the decayed body to all the plumpness and vigour of middle life at least. Every medical man must have observed that blisters to the head have either altogether eradicated gray hairs, or at least made them less common on the parts to which they were applied, by re-converting of the hairs to their original tint.—The same effect is also often witnessed from the application of lunar caustic; and indeed blisters and caustic washes are at the present period successfully employed in changing the colour of the hair in the human subject, from gray to dark, while the white hairs upon the sites of sores in horses have their tint equally readily reversed by the blisterings and gunpowder ointment dressings used by the farriers.

The theory of the above reconversion of colour in the hair, seems referable to the insulation thereof from the magnetism of the atmosphere, by the non-magnetic conducting substances made use of, but whose electric conducting properties enable electricity to be freely conveyed into the system, and thereby, also, through the latter's eventual preponderance to progressively obliterate the ravages which the previous magnetic preponderance had effected. The means proposed being indeed of a very simple nature, an attempt might at all events, be made to ascertain how far the theory by which their beneficial effects are deduced be correct. I would commence by shaving the whole body, and pencilling it over daily with a weak lunar caustic solution, until a sufficiently dark tint was obtained; and on this showing a disposition to peel off, put the patient, morning and evening, in a tepid bath for a few minutes, drying well afterwards, and rubbing in upon the skin some unctuous substance of the color of the hair, such as charcoal ointment when the latter was dark, and palm oil when of a yellowish tint.

In addition to the above, I would have the head insulated with cotton wool, before the peeling off of the caustic, and with plasters of ointment, or palm oil, afterwards; employing at the same time moderate rotations, dieting moderately on nutritious soups and port wine, and retaining the body in proper warmth by sufficient clothing, and the mind in proper health by every agreeable amusement that could be devised. A few weeks of trial would be sufficient to ascertain the efficacy of the above treatment, as to whether a further perseverance therein would be advisable, tinting, however, in the interim, such hairs as had not changed their colour, and shaving all close twice a week at least during the progress of the experiment.

END OF VOL. I.